Marianne Teräs
Johanna Lasonen
Maria Nuottokari

Challenges of Intercultural Vocational Education and Training: Developing a Strand Model in the Change Laboratory

UNIVERSITY OF JYVÄSKYLÄ

FINNISH INSTITUTE FOR
EDUCATIONAL RESEARCH

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Abstract

This report describes a change laboratory process that was conducted as part of a Finnish Academy study called OPCE-project (Opening Pathways to Competence and Employment for Immigrants). The aim of the project was to examine to what extent immigrants' previous competences are recognised and how this affects their employment, career advancement and access to education. Another aim was to develop methodology for recognition and intervention. The purpose of the change laboratory was to explore challenges that vocational teachers and trainers face when teaching students with multilingual and multicultural backgrounds at the Helsinki City College of Social and Health Care. Change Laboratory methodology is based on the developmental work research approach and cultural-historical activity theory. The participants of the process were immigrant students, their teachers, and managers of the College. The change laboratory sessions were attended by ten teachers and two intervention researchers in the academic year 2010–2011. During the change laboratory four major areas of tension in intercultural education were identified relative to the workplace, teaching activities, school practices, and cultural learning practices. Furthermore a new model called a strand model was introduced and developed. According to the model, in intercultural vocational education and training, different elements, such as professional subjects, Finnish language, and cultural practices of teaching and learning, are intertwined like strands in a rope. We can separate and analyse these strands as individual subjects; however, this must happen in line with a shared object. The model combined issues that were implicitly present in the cultural practices of the College, and offered a shared object for teaching activity. In this case the shared object was cultural practices of nursing, instead of separate subjects such as learning psychology or social sciences. Furthermore, teachers developed a shared data bank about intercultural issues for the College.

Keywords: immigration, vocational training, developmental work research, activity theory

Tiivistelmä

Tässä raportissa kuvataan muutoslaboratorioprosessi, joka toteutettiin osana Suomen Akatemian rahoittamaa OPCE-hanketta (Opening Pathways to Competence and Employment for Immigrants). Hankkeen tavoitteena oli tutkia, missä määrin maahanmuuttajien osaaminen tunnustetaan ja miten se vaikuttaa heidän työllistymiseensä, uralla etenemiseen ja koulutukseen pääsyyn. Lisäksi projektin tavoitteena oli kehittää tunnustukseen ja interventioon liittyvää metodologiaa. Muutoslaboratoriossa pureuduttiin erityisesti kulttuurienvälisen ammatillisen koulutuksen haasteisiin silloisessa Helsingin sosiaali- ja terveysalan oppilaitoksessa. Muutoslaboratoriota käytetään kehittävän työntutkimuksen parissa, ja se nojaa kulttuurihistorialliseen toiminnan teoriaan. Prosessiin osallistui oppilaitoksen maahanmuuttajataustaisia opiskelijoita ja heidän opettajiaan sekä oppilaitoksen johtoa. Muutoslaboratorioistuntoihin osallistui 10 oppilaitoksen opettajaa ja kaksi tutkijaa lukuvuonna 2010–2011. Prosessin aikana tunnistettiin neljä kulttuurienvälisen opetuksen keskeistä jännitealuetta, jotka liittyivät työelämään, opetustyöhön, oppilaitoksen käytäntöihin sekä kulttuurisiin oppimiskäytäntöihin. Prosessin tuloksena syntyi uudenlainen kulttuurienvälisen ammatillisen koulutuksen malli, jota kutsuttiin säiemalliksi. Mallissa oppimisen kohteeksi nostettiin ammatin kulttuuriset käytännöt, tässä yhteydessä hoitokäytännöt, sen sijaan että keskityttäisiin erillisiin oppiaineisiin. Säiemalli kuvastaa sitä, että ammatillinen osaaminen koostuu eri asioista, joita voidaan tarkastella erikseen, mutta käytännön opetustyössä ne usein punoutuvat köyden kaltaiseksi kimpuksi. Maahanmuuttajakoulutuksessa erityisesti suomen kielen opinnot sekä ammattiaineiden opinnot muodostavat vahvan yhteenkietoutuman. Opettajat myös kehittävät prosessin aikana yhteistä tietokantaa maahanmuuttajaopetukseen liittyvistä asioista, tätä he kutsuivat MM-huoneeksi.

Asiasanat: maahanmuutto, ammatillinen koulutus, kehittävä työntutkimus, toiminnan teoria

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Background

Recent discussion about immigration has gained more space in national media and documents, becoming thus one of the main topics of political debate and having links especially to labor and economic policies. One element of this discussion is the ongoing dialogue about the vocational education and training (VET) of immigrants, where people have called for extensive multidisciplinary co-operation by authorities as well as for the participation of other parties in society to fully integrate this very heterogeneous group into Finnish society.

Astrid Thors (2010), the former Minister of Immigration and European Affairs, pointed out in her speech that "besides language proficiency another important key to immigrants' integration is their access to work or to studies that lead to some occupation. But the language skills acquired in integration courses are often not enough to open doors to further education or employment. More attention must be paid to upgrading the vocational skills of immigrants for them to find appropriate employment. If the doors to employment stay shut, regrettably often the integration process is halted in halfway."

In fact, people with an immigrant background enter post-compulsory studies considerably less often compared to the main population (Opetusministeriö 2009), which further limits their possibilities to adopt and develop an active role as Finnish citizens and exposes them to the risk of social exclusion. The Social and Health Committee of the Finnish Parliament points out that the most important measures in preventing social exclusion are taken in the respective sectors of education and employment as well as in the sphere of social and health care services, and hence social exclusion can be tackled by preventive actions, even if mainly through remedial measures (Social and Health Committee 2008).

The aim of the law on integration (Act on promotion integration 1386/2010) is to support and promote integration and immigrants' participation into the Finnish society. Furthermore, the aim is to promote equality and equity as well as positive interaction between different population groups. Along with it an experiment called "Having a role in Finland" was launched (1.1.2011–3.12.2013). This experiment deals with various new and flexible models for the implementation of integration

training and educational provision. A central aim is to design, on the basis of the experiments, a new operation model for integration training, which could be taken into national use after the trial period, instead of continuing the current, more or less fragmented development efforts for integration, three pathways were introduced: 1) those who get job easily, 2) those who need special support, and 3) children and young people. (Sisäasiainministeriö 2010a.)

Learning paths and transitions

Over ten years ago, already, a report by the Finnish Government (Valtioneuvosto 2002) stated that young immigrants have varying language skills and especially those with poor Finnish proficiency face a great risk of social exclusion. It had been observed that municipalities had difficulties in organizing teaching of the Finnish language for young people, and dropping out from basic or vocational education as well as learning difficulties in general were causing problems. The situation was particularly difficult for the young immigrants who had come to Finland at puberty, had poor literacy skills, and were too old for the comprehensive school: They had dropped out from school or had failed to enter any further studies. (ibid.) Hence, emphasis on children and adolescents is important and special attention should be paid to the transitional stages from early childhood education to primary school and further to upper schooling.

As we are now moving on to discuss immigrants' learning paths with relevant transition points, drop out statistics and school achievement, it may be worth noting that vocational education and training attracts people with an immigrant background equally to the main population, that is, the percentages are similar in both groups. In contrast the percentage of immigrant students graduating from *lukio*, the general upper secondary school, is lower than average (Opetusministeriö 2009). On the other hand, it has been observed that students with an immigrant background are more likely to drop out of their studies than others. These findings encourage us to focus especially on VET and what kind of a channel it offers for an immigrant's vocational qualification. Another target area relates to work and employment, especially for possible disruptions and barriers therein considered from a variety of viewpoints. Besides the language skills, we should therefore look also into other factors found to either promote or inhibit immigrant students' progress, as described below.

The notion of learning paths is essentially related to the concept of transition, which typically describes the movement and shifting of a person or thing from one state, stage or form to another, like in the course of life or in the psychological sense in personal progress through developmental stages (Teräs, Lasonen & Sannino 2010). In educational research transitions usually refer to moving on to the next grade or school level, or from school to work (ibid), yet on the other hand the term can also refer to all changes in the school environment when a student makes decisions on his/her own future (Huhtala & Lilja 2008). Besides the concept of transition also the term 'nodes' is used, in association with which the Ministry of Education (Opetusministeriö 2005) (today the Ministry of Education and Culture) stresses that the transition between the basic and secondary level of education is not only a turning point between these levels, but it should be seen more broadly, rather as a transitional stage where the student is gradually defining his/her orientation and aspirations for further studies and an occupation. Important issues relative to transitional stages include the contents, teaching arrangements, student counseling and additional teaching in basic education as well as dropping out of secondary level education and changing over to another field or educational channel. (ibid.)

The Ministry of Education set years ago an objective for the development of the education and transition stages, outlining that by 2008 at least 96 percent of the age cohort completing the comprehensive school would start their further studies at the secondary level, or alternatively continue in

the additional 10th grade in basic education, in the same year (KESU 2004). This goal is also known as "educational warranty" and the idea has its roots in the 1970s. The purpose was to develop secondary level education in response to the ever increased educational demand of secondary school graduates and, on the other hand, also to the high drop-out rates in VET (Kivelä & Ahola 2007). The Ministry's working party on transition (Opetusministeriö 2005) has estimated that the risk of social exclusion might still concern annually as many as 17,000 young persons in Finland, which means about 28 percent of the age cohort involved in this transition stage. Then again, Huhtala and Lilja (2008) state that according to different estimations this risk would concern about 5 to 10 percent of the age cohort. Kuusela and colleagues (2008) add to this general picture by pointing out that in comparison to the mainstream population it is more difficult for young people with an immigrant background to move on from one education stage to another and that they are also more prone to drop out of their studies.

As regards drop-out rates in VET and especially for immigrant students, the findings by Kuisma (2001), for example, implied then that immigrant students' studies are not discontinued more often than usual: only about 23% of the students and teachers participating in the survey found that immigrants dropped out more easily. A different perspective is offered more recently by Kilpinen's (2009) study, which states that the less time an immigrant student has lived in Finland, the more difficult it is for him/her to successfully complete the vocational studies. Moreover, the risk of dropping out has been found to be related to an incomplete integration process, being thus particularly high for those first-generation immigrant students who have gone to school in Finland only a few years, come from non-European countries and got but little education in their country of origin (ibid).

Kilpinen's study (2009) shows that the explanatory factors of dropping out, include, age when coming to Finland, low educational background in the country of origin, time lived in Finland and coming from outside of Europe. Her report emphasizes that immigrant students make up a very heterogeneous group with greatly varying starting points. Kilpinen's investigation involved providers of basic vocational education (school's management, teaching and guidance staff) and a number of students with an immigrant background who had dropped out during the school year 2008–2009. Theme interviews with these students revealed the following main reasons for dropping out: difficulties with the language of instruction, insufficient learning skills, economic problems as well as family reasons and difficult life circumstances. A common denominator here was an incomplete integration process. (ibid.)

As an interesting point Kilpinen's report (2009) put forward the effect of the number of immigrant students on drop-out rates and consequent large national differences, as immigrant students are distributed quite unevenly across vocational schools in different parts of the country. In the school year 2005–2006 the drop-out rate for other than Finnish- or Swedish-speaking students in basic vocational education was 14% (n= 533) and roughly the same in the next year; 14.6% (n= 683), while the respective figures for all students were 10.5% and 10.3%. In addition, Kilpinen mentions foreign students as a separate group for consideration: Their drop-out rates in these years were 15.1% and 15.2%, respectively.

When it comes to attempts to decrease the drop-out rates of students with an immigrant background in basic vocational education, Kilpinen (2009) found out that a key factor in the opinion of these students is a teacher who uses different teaching methods in a versatile way and has both pedagogical expertise and experience of teaching such students. In contrast, the other interviewed parties considered that it would be essential to direct resources to flexible support and guidance measures that take students' individual support solutions into account and to the good practices that further strengthen the students' linguistic and other competencies for learning before starting as well as during the basic vocational studies. Kilpinen summarizes that students with an immigrant background enrolled in basic vocational education have very diverse problems, and in order to solve

these in increasingly multicultural Finland we need collaboration between different stakeholders (such as integration authorities, basic education, the families of these students, teaching and guidance staff and everybody responsible for the culture and atmosphere of the school, including staff and students). (ibid.)

The issue of dropping out by students with an immigrant background has also been approached from many other perspectives, of course, e.g., in terms of workshop projects and increasingly detailed transitional collaboration (see e.g. Pirttiniemi & Päivänsalo 2001; Päivänsalo 2002; Vehviläinen 2003). These approaches contribute to the discussion about VET drop out. Some of the current European Social Fund projects have focused specifically on basic vocational education and reducing drop out among students with an immigrant background, like the AMMA project (by Palmenia, University of Helsinki) and the MOKO project in the region of Espoo.

School achievement

Another interesting point for study regarding the school achievement of students with an immigrant background is to find out whether correlations similar to those detected in many quantitative studies abroad between these variables can be observed in the Finnish context, as well (see e.g. Crul 2000, 2007; Heath & Cheung 2006; OECD Review 2006; Thompson & Crul 2007; Bleakley & Chin 2008; Holdaway et al. 2009). In Finland this phenomenon has been studied by Kuusela and colleagues (2008), Kilpi (2010) and Teräs and Kilpi-Jakonen (2013) for instance. They concluded that based on student's average grade in the school-leaving certificate from the comprehensive school second generation immigrants (see section 1.2) did not differ from others, whereas for first generation immigrants, and especially those coming from non-EU countries, these averages were lower. Kuusela and others also noted that possibly related to these lower average grades, students with an immigrant background continue clearly less often to the upper secondary level (ibid).

Kilpi (2010) studied the school achievement of second generation immigrant students in terms of their average grades in the school-leaving certificate and also continuing to the upper secondary level. Explanatory factors in this study included parents' socioeconomic status, income level, educational attainment, employment status, as well as the student's family composition at home and prior school achievement. Kilpi observed that when taking the explanatory factors for education into account, such as home background and prior school achievement, the differences between students with an immigrant background and other students disappear and once other explanatory factors were controlled for, the performance levels of these groups were almost equal in education. Moreover, in this study the students with an immigrant background were considerably more willing to move on to *lukio* than their peers in the main population. (ibid.)

Broadly speaking, Kilpi (2010) identified differences between various groups as follows: Students of East-Asian origin showed highest school achievement, students coming from the former Soviet Union and those with one Finnish parent differed the least from the main population, whereas students coming from the area of former Yugoslavia showed lower school achievement than the main population or second generation immigrants. In addition, Kilpi noted that based on average grades, girls with an immigrant background were outperformed by girls of the main population. It is important to note, however, that the differences within groups were considerably larger than the differences between groups and also that the statistical models could not explain all of the variation. This is closely related with the special characteristics of the Finnish education system, which has been recognized also in international research literature, that the small socioeconomic differences in the population are reflected in school as educational equality (see e.g. Marks et al. 2006). Likewise, the

fairly late selection between general (academic) and vocational studies is better for the children of immigrants, in particular. (Kilpi 2010.)

In studying the school achievement of students with an immigrant background and especially for the second generation immigrants, Markkanen (2010) states that while causal relationships are difficult to specify due to the contextuality and diversity as well as the complexity of interrelationships pertaining to school achievement, such specification is nevertheless necessary in order to improve the position of second generation immigrants. Markkanen concludes that it is problematic to explain the connection between lower than average school achievement and being socially disadvantaged by the person's immigrant background or as attributable to certain ethnic groups, since the combination of disadvantage and lower school achievement is a problem for the main population as well. There are, of course, certain factors that affect immigrant families, in particular, and call for specific measures and additional resources. The point is that lower school achievement among second generation immigrants, for instance, might lead to increased disadvantage for people with an immigrant background, polarization of advantages and disadvantages according to ethnic divisions, and growing inequality in Finnish society. (ibid.)

Markkanen (2010) suggests that instead of highlighting differences we should – so as to develop successful models – pay attention to the societal structures that cause and feed inequality and also their consequences. Markkanen continues that interventions related to the improvement of school achievement can be analytically divided into two categories: resource-centered and immigration-centered. In the first category interventions involve the whole population and deal with changes in structures and practices particularly at the early stages of school, whereas in the latter category the interventions focus on the immigrant population only. (ibid.)

Transition from vocational education to work is also a highly significant node that typically appears slightly different for people with an immigrant background. Like in VET, to some extent, the theme of competence and recognition is closely related to this transition as well. These questions are touched upon here so as to remind about the importance of these transition stages and the ideal of a smooth continuum of learning and work also for people with an immigrant background. In this regard, Forsander (2004) notes that a qualification and work experience acquired abroad did not seem to have much weight in terms of immigrants' employment in Finland and that according to most employers, the only reliable proof of professional competence was a qualification and work experience attained specifically in Finland. In the same vein, Koskinen (2009) found that a VET qualification attained in Finland greatly improved immigrants' position in the labor market, but access to these studies is very hard for some of them, and also their drop-out rates are higher than average.

According to Ekholm (2010), there are already so many projects on education for immigrants that it is challenging for the practitioners to keep up with all the findings and good practices. It is therefore useful to sum up the results from past and present projects and to compile an overview on the range of skills surveys available today. Ekholm also emphasizes that these surveys on professional competencies are related to major changes in the field of education, where the recognition of prior learning is now considered more readily in the spirit of lifelong learning while also attempting to make informal learning visible. Skills surveys for immigrants can also be used for various purposes; for instance, as a tool for individualized solutions in vocational schools, or as support for the guidance given in integration courses, or for recruitment at the workplace. (ibid.)

Ekholm (2010) summarizes that recognition of an immigrant's skills and competencies as early as possible would benefit the individual and society alike; when the immigrant is not treated only as a learner but also as a professional of his/her own field, it may turn into an empowering and motivating experience, which in turn encourages the immigrant to assess his/her professional skills in relation to Finnish requirements and thus recognize possible development targets for better employability. Career counselors can provide information about appropriate educational options available in Finland, and public funds can ´be allocated more efficiently when the competence becomes visible and leads to employment. (ibid.)

1.1   OPCE-project

The present research report takes a close look at everyday reality and describes how the teachers involved in the project at Helsinki City College of Social and Health Care (College) are developing vocational education and training for immigrants, drawing on the change laboratory method adopted from developmental work research and cultural-historical activity theory. While immigration themes sometimes raise even heated debate at national level, people engaged in the development work at the College have tackled existing everyday tensions, taking into consideration the starting points of students with an immigrant background as well as the demands of the world of work. For the College this means operating in the focus of a great variety of viewpoints.

The change laboratory project took place at the College from August 2010 to March 2011. It is a part of a larger research program *(Opening up pathways to competence and employment for immigrants, OPCE)* funded by the Academy of Finland and administered by the University of Jyväskylä. The program is led by Professor Johanna Lasonen (University of South Florida, Tampa, USA and University of Jyväskylä, Finland). The program comprises three subprojects, which complement each other building partly on each other's research findings in an attempt to produce new knowledge both for academic and societal purposes as well as for organizational and individual use. The subprojects consist of *Immigrant workforce competence* led by Johanna Lasonen, *Highly educated female immigrants' odyssey to access the Finnish labour market* led by Carine Cools, and *Intercultural learning among adolescents of ethnic minorities in Finland* led by Marianne Teräs and including also the change laboratory in question (see Section 4). The research tasks in common to these subprojects have been defined as follows:

- To study immigrants' transitions to education and employment and analyze the process of competence recognition from the viewpoints of individual and community.
- To study employer's intercultural competence.
- To develop methodology related to recognition and intervention, so as to facilitate the recognition of immigrants' competence and create new paths to employment in Finnish organizations. (OPCE 2009.)

These common tasks can also be presented in the form of questions: 1) Why and how are young adults and even highly educated immigrants categorized into a disadvantaged ethnic stratum, and can this type of classification, which has been identified in other western countries (Heath & Cheung 2007), be found also in Finland? On the other hand, we can ask 2) to what extent immigrants' prior competence is recognized in Finland and how much it contributes to their employment, career development and access to education. An underlying idea is that the program could at the same time develop methodology related to recognition. Ultimately, the question seems to be whether the OPCE

program in general succeeds, by means of developmental interventions, in opening new paths for immigrants to professional qualification and employment in certain Finnish work organizations. (OPCE 2009).

The next subsection deals with the term 'immigrant' and outlines different immigrant groups under this general term (1.2). After this we will move on to discuss immigrants' vocational education (1.3) and further to consider what multicultural VET actually means, in attempt to clarify and provide grounds for setting up the change laboratory project at the College (1.4).

1.2   Various immigrants in Finland

One of the main issues is that immigrants are not a homogeneous group and different approaches are needed in order to secure the well-being of diverse people. There is a period of three decades which for immigration includes a variety of complex changes in societal structures and the psychological atmosphere. A major change took place in Finland in the 1980s, as the tide of migration turned from emigration into immigration. This trend gained momentum in the 1990s so that in 2008 the population included altogether 219,000 foreign-born people with 120,000 descendants born in Finland (Martikainen 2009). A significant landmark was the year 2006 when Finland received more immigrants than ever before during her independence (Vartia et al. 2007). In 2007 altogether 132,600 foreign citizens held the status of permanent residents in Finland. In 2008 this figure had increased to 143,200, and further, by the end of 2009 the figure had risen up to 155,660 (Sisäasiainministeriö 2010b). Current statistics are also based on native language and country of birth. By the end of 2012 number of people, whose native language was other than Finnish, Swedish or Sami, was 266 949. It is 4.9% of the population of Finland. The largest groups were Russian speakers (62 554), Estonian speakers (38 364), Somalian speakers (14 769), English speakers (14 666) and Arabian speakers (12 042). (Tilastokeskus 2013.)

Globally, a significant increase of immigrant population in recent decades has been verified all over the world and current estimates of their numbers are around 190 million (Castles & Miller 2009). Alternatively, the share of immigrants of the total population in OECD countries (Organization for Economic Cooperation and Development) in 2006 was estimated to be nearly 12 percent, on average, although there is much variation between individual countries (OECD 2008). It should be borne in mind, however, that country-specific statistics, as such, are seldom applicable to other countries due to different societal characteristics and varying conditions of minorities (Martikainen 2010). Besides, there are also national differences in the way of defining immigrants, even if the criteria most typically include nationality and native country (OECD 2006).

In Finland the terminology has developed roughly as follows: Since the year 1994 attention has been paid increasingly to the themes of immigration, and integration policies have been extended to cover both refugees and all other immigrants registered as residents in Finland. Policy changes contributed to changes in official terminology, as well, while the terms 'refugee' and 'foreigner' were replaced with 'immigrant' (Matinheikki-Kokko & Pitkänen 2002). According to the latest definition, 'immigrant' refers in the Finnish context to a person who was born in another country and is now living in Finland on a permanent basis (see e.g. Martikainen & Haikkola 2010) so that the reason of immigration is, for example, work, studying or refuge, which as such already indicates that we are dealing with a highly heterogeneous group.

According to Statistics Finland and its population register (see e.g. Sisäasiainministeriö, 2010b), immigrants can be defined in terms of a foreign citizenship, foreign language, place of birth, emigration or immigration. Martikainen (2010) finds that this makes the concept really problematic and

means that the statistics of the actual numbers of immigrants in Finland, for example, are just estimates and should be considered with certain reservation. As an example of the problematics of concept definition Martikainen mentions that a foreign citizen may apply for and be granted Finnish citizenship and thus disappear from some registers as an immigrant. Moreover, a person born abroad may have Finnish parents, and foreign language identity is mostly based on subjective experience. Also Ålund (1997) found the term 'immigrant' problematic, as it places people in one category despite their differing individual properties (their social, cultural, and economic backgrounds). Kamali (1999) specifies that for immigrant adolescents, for instance, this may show so that on the one hand they are considered a homogeneous group, as a uniform block, ignoring any differences in their values or individual circumstances while on the other hand no fundamental differences are seen between immigrant and other adolescents. In the former case, the role of socioeconomic factors and social conditions are unjustifiably dismissed in outlining different groups of immigrants, whereas in the latter case cultural differences are ignored. (ibid., see also Anthias 2009; Teräs et al. 2010)

Besides the traditional attributes (such as language and nationality), Martikainen and Haikkola (2010) underline a generational approach, which is relatively new in Finland. This approach takes into account the child's and parents' (foreign) origin and age when coming to the present home country so as to enable classification into generations as defined by Rumbaut (2007) (Generation 1, Generation 1.25, Generation 1.5, Generation 1.75, Generation 2 and Generation 2.5). When referring to first and second generation immigrants at the same time, Martikainen and Tiilikainen (2007) use the term persons with an immigrant background, because such a background is considered an important factor in a person's or group's life, even if the person was born in Finland.

The generation approach is also supported by the fact that while the first generation immigrants were still relatively easy to identify based on language, for instance, their children born in Finland and speaking Finnish, yet bearing an immigrant background, are growing up integrally involved in the Finnish education system and labor market with further immigrant generations. The successfulness of immigration and integration policies for the first generation immigrants can be evaluated as long-term effects particularly with regard to their children's integration to Finnish society and how well the education system, for instance, has met their needs.

In defining the concept of generation we can typically distinguish between family generations, age generations, and cultural generations (see e.g. Purhonen 2007). Teräs, Lasonen and Sannino (2010) suggest that biology-based family generation could be conceptualized as vertical, while perceiving age generation as a horizontal construct. Cultural generations, in turn, are heritage from Mannheim, and regarded as age generations sharing the same generation experience and identity. This concept is now occupying a lesser role in migration research, but its significance can still be seen, for example, in dealing with immigrants' children's generation experiences shared with the mainstream population (e.g., at school or in free time, or with reference to pop culture) (Martikainen & Haikkola 2010) or when speaking about "multicultural young people" (Harinen et al. 2009) or about the "color-blind generation" (Koskela 2002). Today's generation research, however, is characterized by the analysis of parents' social, economic and cultural resources in relation to their children's achievement and, on the other hand, by investigating the role of the structures of receiving society within the process of generational integration (Rumbaut 2007).

In this connection a useful approach is Rumbaut's (2007) way of defining generations on the basis of family generations and related research. As mentioned above, Rumbaut highlights children's and parents' (foreign) origin and age of immigration, which he considers decisive for the course of life in the new home country. According to Rumbaut, a common characteristic of first generation immigrants is that they were born outside the new country and immigrated there at the age of 18 or

older. However, also younger immigrants are considered to belong to the first generation, and they are categorized further by their age when coming to the new country as follows: in early childhood (0- to 5-year-olds) constituting the intermediate Generation 1.75; childhood (6- to 12-year-olds) representing the intermediate Generation 1.5; and in teenage (13–17-year-olds) forming the intermediate Generation 1.25. In contrast, second generation immigrants were born in their present home country unlike either both or one of their parents. If both parents are first generation immigrants, their children are classified as "genuinely" second generation immigrants, whereas if only one parent is an first generation immigrant, their children fall into a further category of Generation 2.5. (ibid.) Teräs, Lasonen and Sannino (2010) argue that of all immigrants, those of Generation 1.25 are in the most difficult position, as their language acquisition capacity has slowed down and many students may have problems at school, particularly if the school culture in their previous home country differed much from the present one.

As was mentioned above, the second generation serves as a good indicator for the integration of the first generation to Finnish society (Kilpi 2010). While the first generation may have had difficulties in learning the local language and their prior qualifications may have turned nearly useless and work experience slightly unsuitable in view of the Finnish labor market, these are no longer expected to pose challenges for the second generation. Therefore, any gaps between second generation immigrants and the main population can be attributed to the immigrant background, in particular, which affects either the second generation immigrants' behavior or the way they are treated by the majority. Education plays a pivotal role in the integration of the second generation, and offers one of the main channels to employment. (ibid.)

1.3 Basic vocational education for immigrants

Because the change laboratory project took place at the College, which is a vocational institute for social and health care, it is appropriate to look at VET for immigrants in this specific context accounting for the characteristics of this field. This section discusses the goals of education for immigrants, preparatory training for vocational education, and touches upon competence-based examinations as well as recent curriculum reforms in the field of social and health care. The participants involved in the change laboratory project were also engaged in activities beyond the scope of preparatory training for immigrants, like in the group for practical nurses, but here we will deal with the above-mentioned forms of education, while the special characteristics of actual VET studies will be presented more closely in the subsections describing the working within the change laboratory.

The provision of VET is always linked to the dialogue with the world of work, in quest of a balance to satisfy all stakeholders from the viewpoints of society, education provider and the individual. For an job-seeker with an immigrant background an interesting point of view is Forsander's and Ekholm's (2001) finding that social and cultural competencies and good language skills are easily highlighted at the workplace today, which may categorically exclude immigrants in the labor market. An immigrant's position in the labor market can be considered as resulting from the interplay of personal and structural factors. According to Forsander and Ekholm, personal factors include education, work experience, country where these were obtained, time spent in Finland, language skills, personality, country of origin, and social networks. Structural factors comprise prejudice issues, like discrimination on the grounds of gender, ethnic group or age and also normative aspects (e.g. work permit), and ultimately changes in the world of work. (ibid.) This kind of labor market scene may serve as a frame of reference when we will now look at vocational qualifications and VET for immigrants as examples of the learning paths available in the Finnish context.

According to the Finnish Board of Education, NBE (Opetushallitus 2011) the explicit aim of education provided for immigrants in Finland is to offer them "competencies to act as equal members in Finnish society and participate in education at different levels". Here, the term 'immigrants' refers very broadly to refugees, migrants, returnees, and other foreigners and, in some cases, also asylumseekers. The underlying idea is that immigrants could follow learning paths similar to those of young Finns. If this turns out impossible for some reason, immigrants can prepare themselves for further studies in the additional tenth grade of the comprehensive school, in other preparatory study groups, or in various general adult education institutes, for example. (ibid.) There are also training courses for immigrants in Finland, and they can also participate in vocational training courses. Both these course options are essentially connected to the change laboratory project, as well.

Education provided for immigrants is typically divided into four sectors: 1) preparatory instruction for basic education, 2) preparatory courses for basic vocational education, 3) primary and general secondary education, and 4) adult education (Opetushallitus 2011). Of these, the second one is most relevant for the change laboratory project. The NBE issued a new core curriculum on August, 2008 (NBE 2008 order 7/011/2008), defining new terms for the preparatory training for immigrants. The extent of preparatory training ranges from about 20 to 40 study weeks and lasts from six to twelve months. Within individual study plans, the aim is to improve the learners' language skills and other competencies needed in VET studies as well as life management. These goals are pursued by studying Finnish or Swedish as well as mathematical and social subjects. Besides, the learners are introduced to different occupations and vocational studies. The training is regulated by the Vocational Education Act (630/1998, §3, paragraph 2) and related Decree (811/1998, §21).

The NBE has been investigating the state of immigrants' preparatory training for basic vocational education in Finland and has already published five survey reports on the matter (concerning the academic years 1999–2000, 2001–2002, 2003–2004, 2005–2006, and also 2008–2009) (Kapanen & Kantosalo 2009). The enrolment in immigrant training has increased steadily each year (see e.g. Kilpinen & Salonen 2011). Consequently, an increasing number of education providers have been authorized to arrange these training courses: Their number rose from 45 in 2006 to 52 in 2009 (Aunola & Korpela 2006; Kapanen & Kantosalo 2009), reflecting the increasing immigration to Finland (Opetusministeriö 2009). The education providers are mainly located in southern (n=23) and western Finland (n=18), with rather few places in the rest of the country (the Province of Eastern Finland, n=5; the Province of Oulu, n=5 and Lapland, n=1) (Kapanen & Kantosalo 2009).

The NBE conducted a survey in the academic year 2008–2009, which covered 39 education providers that also catered for preparatory training for immigrants (Kapanen & Kantosalo, 2009). According to this survey, there were 1785 applicants for these courses of whom 986 (55.2%) were admitted (Kapanen & Kantosalo 2009). Of those admitted 613 (62%) were female and 373 (38%) were male, which is nearly the opposite distribution compared to the year 2004 (N= 886, male 65%). By age, the largest group was 21–40-year-olds. More specifically the age distribution of the students (N=986) admitted to the preparatory training courses was as follows: ages 16–20 17% (n=169), ages 21–30 38% (n=376), ages 31–40 27% (n=266), ages 41–50 13% (n=128), and ages 50+ 5% (n=50). The students represented altogether 42 nationalities, with largest groups coming from Russia (27.6%), Somalia (6.4%) and Afghanistan (4.2%). (ibid.)

Preparatory immigrant training courses are intended for those immigrants who live permanently in Finland and whose Finnish or Swedish language skills is not at Level 2.2 on the European Proficiency Scale. These are thus the only general student selection criterion for these courses (Kapanen & Kantosalo 2009). According to a recent survey, education providers hold differing views about the student selection criteria: while some are happy with the present practice, some others called for more specific guidelines, and still others were in favor of national language tests for screening pur-

poses, and others were more willing to have as diverse group of students as possible. The survey also brought out a strong emphasis on the importance of the mastery of the language of instruction and several education providers were concerned about whether students with varying linguistic starting points can reach an adequate command of the language of instruction during the preparatory training. This was often found decisive for the access to further studies or employment. (ibid.)

As regards individualized study plans, the education providers wondered if the present type of preparatory training for immigrants can meet the needs of students coming from different parts of the world and from a variety of cultural backgrounds (Kapanen & Kantosalo 2009). Since the education systems and qualification practices of the students' original countries may deviate greatly from those in Finland, the biggest problem mentioned with regard to designing individualized study plans was the recognition of their prior learning. In addition, according to the survey results for the academic year 2008–2009, a total of 16.4 percent of students dropped out from the preparatory training for immigrants. The most common reason given for this was "placement in other education" (60.5%), while other reasons included "family leave or other family reasons" (50%), "moving away without further placement information" (39.5%), "employment" (34.2%), "no commitment to the course" (28.9%), "economic reasons" (21.1%), "health reasons" (13.2%), and "unspecified personal reasons" (13.2%). (ibid.)

On the basis of the survey we can still estimate, although roughly, the successfulness of the preparatory training from the viewpoint of students' later placement in further studies, as these data are incomplete for some education providers (Kapanen & Kantosalo 2009). However, about 80% of the education providers covered in the survey did follow their students' subsequent placement, which gives us the following percentages: basic vocational education 36%, labor market 6%, further studies for the language of instruction or other remark about the importance of language skills 44%, general studies that do not lead to qualification 42%, family leave 17%, higher education 14%, apprenticeship training 14%, unemployed 5.5%, training for competence-based examination 2.9%. (ibid.)

Another possible route toward a vocational qualification is so-called vocational start-up training, which is available to immigrants and young people alike. The vocational start-up training is intended for those comprehensive school graduates who have not yet decided on their future careers and may wish to learn about the different options VET is offering, and also strengthen their learning skills and improve their knowledge base for further studies (Opetushallitus 2010b). On the other hand, this training may also include students who have dropped out early from vocational or general secondary education. The training seeks to improve students' competencies for life and learning, strengthen their basic skills and knowledge, and introduce various educational and occupational options. In addition, a student may choose vocational or other studies – minimum 20 and maximum 40 study weeks – within the program. Basically, the core curriculum is applied in a highly individual and flexible way according to the student's needs so that the instruction is practical and largely based on learning by doing. The courses taken within the start-up training can be included in later vocational qualification, and if there are places available, students can fairly flexibly move on to actual vocational programs at their convenience, provided that they are ready and eligible for it. In connection with the start-up training, students can also improve marks in their school-leaving certificates. (ibid.) At the College there are two ongoing development projects related to the vocational start-up training.

A basic vocational qualification (120 study weeks) can be obtained through a VET program or through a competence-based examination. For this reason, below is a brief overview on the competence-based examination system, as well, particularly from immigrants' point of view. The professional requirements in these examinations are the same for all candidates, immigrants included (Opetushallitus 2010a) On the other hand, the professional skill should be assessed so that the candidate is not penalized for limited language skills but the candidate must be proficient enough to

understand clearly stated instructions, orders and regulations related to the examination and relevant performance. In practice, most immigrants participate in preparatory training for these together with other students, but in some particular fields training courses specifically for immigrants are needed when it comes to professional terminology, for example. (ibid.) In 2010 a new core curriculum for social and health care was introduced by the NBE.

1.4   Learning a vocation in terms of cultural practices

In recent years several studies have been published in Finland on VET students with an immigrant background. Some of these studies are discussed in this section. In addition some of the presented studies focus on basic rather than vocational education, but are at least to some extent applicable to VET and its increasingly multicultural context. This also indicates that much of the research concerning the cultural diversity of schools and also students with an immigrant background has taken place in the sector of basic education, while slightly less attention has so far been paid to VET in this respect. This section attempts to illustrate what vocational learning may seem like in terms of cultural practices as perceived mainly from the teacher's and instruction, but also the school's point of view. This will further contribute to the conceptual framework for the College-based change laboratory work.

The section heading "Learning a vocation in terms of cultural practices" may be justified, because of the somewhat limited scope of such close terms as 'multicultural' and 'intercultural' in describing the phenomenon and the historical trends of related research. Järvelä (2002) points out that the problematics of definitions of multicultural or intercultural education, instruction and teacher education is manifested in the wide variety of available concepts. For example, terms like multiculturalism, multicultural education, education for tolerance, education for peace, cultural encounters, internationalization and internationalist education, and pluralism are used generally in educational contexts. Järvelä adds that in Finland the concepts of multiculturalism and interculturalism are often used as parallel terms in educational research (Järvelä 2002). Here, we will comply with the concepts each cited researcher has used, bearing in mind what was said about the conceptual diversity in this field.

As far as Finnish teacher education is concerned, multiculturalism emerged as a topical issue in the 1990s (Järvelä 2002). An indication of the rising interest in this issue is the special M.Ed. International Program launched at the University of Oulu in 1994, initiated by Rauni Räsänen, which focused on multiculturalism and internationalist awareness, and the ethics of education. In Finnish educational discussion, Räsänen (2002) has used the concept of interculturalism and talked about interculturalist pedagogy or interculturalist teacher education. She considers that the value basis of these approaches is formed around the following themes: human rights, interaction between cultures, learning from each other, non-violence, peace, equity, and justice. On the other hand she distinguishes between the domains of 1) awareness and transformation and 2) sensitivity and commitment, and points out that in practice it is essential to learn sensitivity that is needed in intercultural communication and also practical skills, knowledge and other competencies. In sum, the aims of interculturalist teacher education might be listed as follows: 1) cultural sensitivity and intercultural competencies in intercultural contacts, 2) awareness of social power structures and monoacculturation, 3) work for peace, equity and justice at micro and macro levels, and 4) pedagogical skills to accomplish the previous aims. (ibid.)

Although Räsänen (2002) does not fully agree with the claim, she mentions that Finland has typically been considered a highly monocultural country that has faced multiculturalism only recently.

The goals of Finnish school included quite early the issue of internationalist education, which later on has turned into multiculturalist education, which Räsänen finds necessary to incorporate in teacher education and working at the grass roots level in the increasingly international world. Räsänen regards that interculturalist education calls for a holistic change in the educational ethos and environment. According to Banks and McGee-Banks (1989; also Banks 1999) such a change should involve broadly the following areas: goals, contents, methods, approaches, curricula and hidden curricula, practices, language issues, learning materials, evaluation, student welfare, counseling, staff's attitudes, the ethos of school, collaboration with parents, and education policy and regulations. Ideally, these areas could pervade teacher education so that curricula would take Finnish multiculturalism and issues related to international cooperation and responsibility fully into account (Räsänen 2002). Even if Räsänen (e.g. 2005) and colleagues have gained merit as developers of interculturalist teacher education, approaching intercultural collaboration and learning as an ethical challenge, in particular, she also notes that the contents and methods of interculturalist education have rarely been examined from the perspective of adult education (ibid).

This challenge has been taken by Lasonen (e.g. 2005, 2009) and Teräs (e.g. 2007), for example, who have investigated interculturality and/or intercultural competence in education and at the workplace. Lasonen (2005) sees interculturality especially as learning to act as an interpreter and mediator of cultures (see also Lasonen & Halonen 2009).

Teräs (2007) applied the change laboratory method, which is known from developmental work research and cultural-historical activity theory, to vocational secondary education and developed the method further into so-called Culture Laboratory in order to understand and conceptualize the process of intercultural learning. In her study, in which students with an immigrant background and their teachers had meetings to discuss and resolve everyday challenges of cultural diversity and variation. Teräs found that Culture Laboratory provided a sound basis for intercultural learning and related development. In addition, she found out that this kind of intercultural space suits well to brainstorming and developing new action models, while bringing for joint consideration various tensions that stem from the participants' different interests and past and present experiences. This process of observation, comparison and creation takes place at the interfaces of different cultures and activity systems, which makes hidden cultural functions more visible to all participants and further enables the development of shared activities and targets. Typically, this calls for collaboration between the participants in order to develop a shared understanding and meaning, which may eventually lead to new practices. (ibid.)

Besides these findings, Teräs (2007) noted that the diversity of activities is a natural part of intercultural encounters so that in addition to identifying the core activities it is essential to observe the activity the participants are simultaneously engaged in and any historical changes therein. This is closely connected to the notion that the participants are seen as active producers of empirical knowledge, who thus enable joint consideration of different activities. As an example of practical observations concerning intercultural learning Teräs mentions that in their new home country immigrant students are faced with educational practices, tools and methods that are formed locally, culturally and historically and may be contradictory to those used in their country of origin and thus give rise to cultural conflicts. On the other hand, most teachers in Finnish vocational schools are typically used to teach other than immigrant students and take the current practices for granted. Offering an alternative view, Teräs emphasizes the recognition of structural barriers and intercultural competencies that should be perceived also as collective competence within the organization and not only as students' and teachers' individual competencies. (ibid.)

When it comes to multiculturalism from teachers' point of view Talib (1999) found out in her study that teachers (n=121) experienced the teaching of immigrant students as challenging, enriching

and straining, even though the enrichment aspect was wearing down along with growing experience of working with students coming from diverse cultures. In addition, 26 teachers held nonchalant and authoritarian attitudes toward immigrant students. On the other hand, a majority of the teachers stated that they are multiculturally oriented, although Talib could identify only ten teachers who actually showed a socially reforming, multicultural educational principle, which stresses acceptance of dissimilarity, social democracy, and social reformation. As an opposite approach Talib names the notion of functional school, where dissimilarity is considered a flaw or a deviation from the norm of white middle class, and this state of affairs can be remedied, for example, by special education or methods focusing on personal relationships. Teachers' attitudes toward immigrant students are also influenced by lack of training and experience, inadequate resources, and lack of time, which are likely to increase their feelings of frustration and may harden their attitudes and feed intolerance. On the other hand, teachers' feelings of powerlessness in teaching immigrants decreased along with growing experience. These findings suggest that a teacher is not always able to understand and be responsive to a student with a foreign cultural background and limited language skills. (ibid.)

An important finding mentioned by Talib (1999) is that some of the teachers did not see their own role as significantly contributing to immigrant students' school achievement. They also presumed groundlessly that school as an institution is more democratic and neutral than it actually is. The teachers participating in the study also indicated that they lack knowledge relative to culture and student recognition and were not properly prepared to work with students coming from a foreign culture. Talib aptly notes that while teachers should face their own persona so as to be able to face another person, also cultural encounters call for perception and awareness of one's own national and western culture. (ibid.)

According to Soilamo (2008), in the context of multicultural education we can talk about teacher's multicultural qualification, competence, expertise, and cultural sensitivity. Matinheikki-Kokko (2002) calls this cultural competence, which is based on readiness to work in multiethnic and multicultural settings. Talib (2005), in turn, outlines multicultural competence by suggesting that teacher's clear self-conception and identity provide a basis for multicultural competence. Further, it would be beneficial to a teacher working at a multicultural school to see his/her own Finnish cultural identity as one among many other ethnic identities. In addition, multicultural professionalism requires awareness of otherness and, in particular, critical reflection on one's own past and work at personal and community levels. At the community level social activity and influence come into play, since teachers as public sector professionals can build bridges between different cultures. Still another area of teacher's multicultural competence described by Talib is global responsibility and related influence, which includes safeguarding of human rights and striving for sustainable development. (ibid.)

Matinheikki-Kokko (1999) pointed out that one objective of integration is that children learn both their mother tongue and the Finnish language, adopt their own culture yet influenced by the mainstream culture so that they can operate simultaneously in both these cultures with appreciation. Many researchers (Matinheikki-Kokko 1999; Miettinen & Pitkänen 1999; Pitkänen & Kouki 1999; Räsänen, Jokikokko, Järvelä & Lamminmäki-Kärkkäinen 2002) have noted, however, that typically the representatives of minority cultures have to adapt to the practices of the mainstream culture, and for example the operation culture and curricula at school are mostly monocultural rather than multicultural. Hence, defining the limits of pluralism has become a major challenge to intercultural education (Matinheikki-Kokko & Pitkänen 2002). Matinheikki-Kokko (1997) also points out that training that deals with attitudes can facilitate contacts between different cultures, improve teachers' multicultural competence, and broaden the multicultural competence of the school community in general. However, this calls for resources allocated to this purpose as well as planned and extensive enough measures in initial teacher education and in-service training. (ibid.)

Also Pitkänen (2006) has studied intercultural competence in educational contexts, more specifically the ethnic and cultural diversity in the work of authorities. The survey gathered the views of authorities (N=3320) including 313 primary and secondary school teachers, of whom 76 percent had mainly positive experiences of immigrant students, whereas two percent perceived these students only or mostly negatively. Those teachers whose experiences were positive described immigrant students as well-behaving, eager, gifted, spontaneous and enriching their class community, and who also brought along new perspectives to teaching. Teachers' negative experiences, then again, were typically related to learning difficulties arising from lacking language skills as well as to social problems and difficulties in adjusting to the Finnish school system (Pitkänen 2006).

Pitkänen (2004) notes that an important objective at school is to ensure each student's well-being, but equal opportunities are not always sufficient to guarantee equal outcomes. Despite good efforts, mistakes concerning students happen and also discriminative attitudes occur. Thus, according to Pitkänen, crucial elements in multicultural teaching include the kind of didactic and pedagogic practices where the students are treated on an equal basis but possibly in different ways. This means that the teacher has to constantly evaluate and adjust his/her own actions so as to account for the interests of individual students as well as the whole class (ibid). In other words, education that acknowledges pluralism puts emphasis on the provision of equal opportunities and two-way acceptance of dissimilarity. Therefore, the recognition of cultural diversity and special cultural characteristics is just as important as finding a shared norm and value basis (Pitkänen 1997; Miettinen & Pitkänen 1999; Pitkänen 2004).

In sum, one aim of the Finnish integration policies is to build a multicultural society so that immigrants are treated on an equal basis in society, while also helping them maintain their own ethnic culture (Matinheikki-Kokko 1997; Pitkänen 2006). Another aim is to promote positive attitudes among the main population toward multiculturalism and immigrants (ibid.), which seems quite challenging in the light of Pitkänen's survey (2006) of the views held by authorities, as they have, for a long time, interpreted the notion of integration as synonymous with assimilation. However, teachers' (n=313) responses indicated that striving for integration seems to be gaining ground over the assimilation thinking, and even more so among young and female teachers. We can thus say that ethnic and cultural diversity has become part of the daily life of public sector personnel. (ibid.)

2
Theoretical approach and methodology

The conceptual framework for the College-based change laboratory project consists of developmental work research and cultural-historical activity theory, which is described briefly in section 2.1. The methodology deriving from this approach, in turn, is introduced in section 2.2, and as one its applications the change laboratory method is depicted in section 2.3.

2.1   Cultural-historical activity theory

Cultural Historical Activity Theory *(CHAT)* (see e.g. Vygotsky 1978; Leontjev 1977; Luria 1976; Engeström, Miettinen & Punamäki 1999) and subsequent Developmental Work Research (DWR) are described briefly below. CHAT was created in the 1920s by Russian psychologists, Vygotsky, Leontjev and Luria, building on the idea that a person and his behavior cannot be understood only as an abstract, eternal individual or in terms of abstract separate qualities (Engeström 2004). Instead, the phenomenon should be approached from the perspective of activity and study people living within their culture, interact with other people by means of their cultural tools and instruments which change historically. (ibid.) Especially in Scandinavia, activity theory has been used in studying the interaction between humans and computers (Kaptelinin & Nardi 1997), also exemplified by Kuutti's (1995) research into the interaction between humans and technology. On the other hand, the general activity system model by Engeström (1995) and activity theory applications in DWR deserve a mention as also internationally recognized applications. It is an approach based on CHAT and combines scientific study, practical development work, and learning.

Kaptelinin and Nardi (1997) mention that in activity theory human behavior is explained by means of five principles: object-orientation, hierarchy of activities, internalization and externalization, mediation, and development. They add that in order to outline the core of an activity these principles must be considered together (ibid.). Engeström (2004) has formulated these five principles as follows: object-orientation, mediation of an activity by means of signs and devices, shap-

ing the actions and activities in joint development, conflicts and tensions as sources for change, and the dimension of history. He also points out that there is no fundamental individual agency, since all principles call for institutional agency and are social by nature. (ibid.) On top of these, Engeström (2006) finds that the notion of causality is inherent to human activity, associating it with three levels: interpretive, contradictory, and agentive. In practice this means, for instance, that an individual is interpreting a situation, detecting perhaps several mutually contradictory motives of action in historically constructed communities and the targets of their actions, finding the situation therefore as confusing. A way out is provided by external cultural artifacts, which enable the individual to act in a goal-oriented manner and change the situation and possibly the activities in general. (ibid.)

Engeström (1999) summarizes activity theory as follows: First, activity theory strives for contextuality and is focused on historically, culturally and locally shaped activities, targets of action, culturally mediated artifacts as well as social organization (Cole & Engeström 1993). Second, activity theory is founded on the dialectic theory of knowledge and thinking, and is concentrated on the creative potential of human cognition (Il'enkov 1977). Third, activity theory is a developmental theory, which seeks to explain and produce qualitative changes in human activity (Engeström 1999). The last-mentioned aspect is closely related to developmental work research approach (Engeström 1995). Activity theory is applied to the study of work activities, work communities, organizations and technologies in order to control the changes taking place at work (Engeström 2004). This issue is described more closely in the next two sections.

2.2   Methodology

The methodology of the change laboratory project at the College is based on a DWR approach developed by the Centre for Research on Activity, Development and Learning (CRADLE) of the University of Helsinki. Engeström (1995, 2005) describes this as an interventionist approach, which seeks to investigate work activities, changes in work, and learning so as to enable appropriate adjustments for practices and social realities. He adds that developmental work research is typically considered to yield three kinds of results: 1) concrete changes in work, such as application of new methods or instruments and changes in staff's ways of thinking; 2) qualitative and quantitative findings, such as recognizing typical features and their interrelationships occurring at work; and 3) mediated conceptual devices, like concepts and models, that evolve in the combination of data analysis and general historical analysis (Engeström 1995). In the following we will outline the methodological framework of this report, with reference to DWR, but without going into the details of any later research applications of this methodology (cf. Engeström 2005; Virkkunen, Ahonen & Lintula 2008; Virkkunen, Ahonen, Schaupp & Lintula 2010). Thus, we attempt to describe the framework typically provided for the participants of change laboratory activities.

The three main aspects of DWR can be outlined in the light of the following theoretical and methodological notions (Virkkunen et al. 2001). First, DWR focuses on a collective activity system (Figure 1), where the shared activity has a specific object, but is also defined by relevant tools, rules, community and division of labor, so that individual actions and situations, such as disturbances, breakdowns and innovations are always analyzed in relation to the whole activity system (Engeström 1987). The second aspect comprises the notion that any problems occurring in the activities indicate contradictions between different elements of the activity system, which can be revealed, however, by analyzing these breakdowns and disruptions at work or, on the other hand, possible new ideas related to work. This can take place by examining the contradictions both from the viewpoint of his-

torical development and in terms of the current work, which is supposed to give clues about how the current problems have been generated. This, in turn, would enable resolving of these problems and also the development of new tools and forms of activities that may lead to qualitative changes. Third, DWR is characterized by the idea of expansive learning and by reviewing changes and development as long-term processes of collective learning, which may yield new shared tools and collaborative models, rather than just changes in individual thinking patterns. (ibid.)
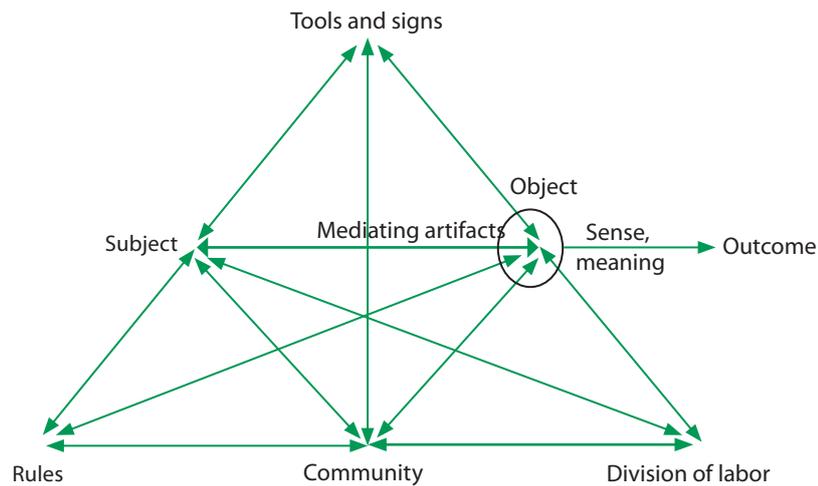
Figure 1. *The structure of a human activity system (Engeström 2001, 135)*

According to Virkkunen and colleagues (2001), an activity system refers to an established and locally organized operation practice. It starts from a community that pursues some activity making use of specific resources for this purpose and guided by certain rules and the division of labor within the community. Virkkunen and colleagues highlight, however, the object as the most important element of the activity system, working for which will eventually bring results. Another essential point is the inherent and always present contradiction of all elements of the activity system that prevails between the practical value and exchange value of the element. This contradiction makes the participants look constantly for more and more advantageous solutions. It is also possible that an activity system receives new elements from outside or that some of its elements change, which brings about culminating contradictions between the elements, calling thus for new tools and forms of activities. In practice, such contradictions may emerge as problems related to individuals' actions, for instance, or as contradictory expectations for them. Such problems are reflected in work as disruptions, breakdowns, flaws in quality, inefficiencies or, on the other hand, as unreasonable workloads, unbearable haste and exhaustion. Overcoming such challenges requires expansive resolution of the internal conflicts of the whole community as well as updating the tools for joint activities. (ibid.)

In DWR projects the participants usually analyze their activities together, which is supposed to motivate them to develop and try out new solutions for the problems faced at work (Virkkunen et al. 2001). At this stage it is essential to take into consideration both the past development and the current state of the work. The historical dimension can be illustrated by memoirs, interviews, annual reports and other old documents. The current reality can be documented, for example, by recording topical events using videos, interviews or by simulated work situations. This kind of material can serve as a mirror for the participants' activities, which can now be outlined in the form of activity
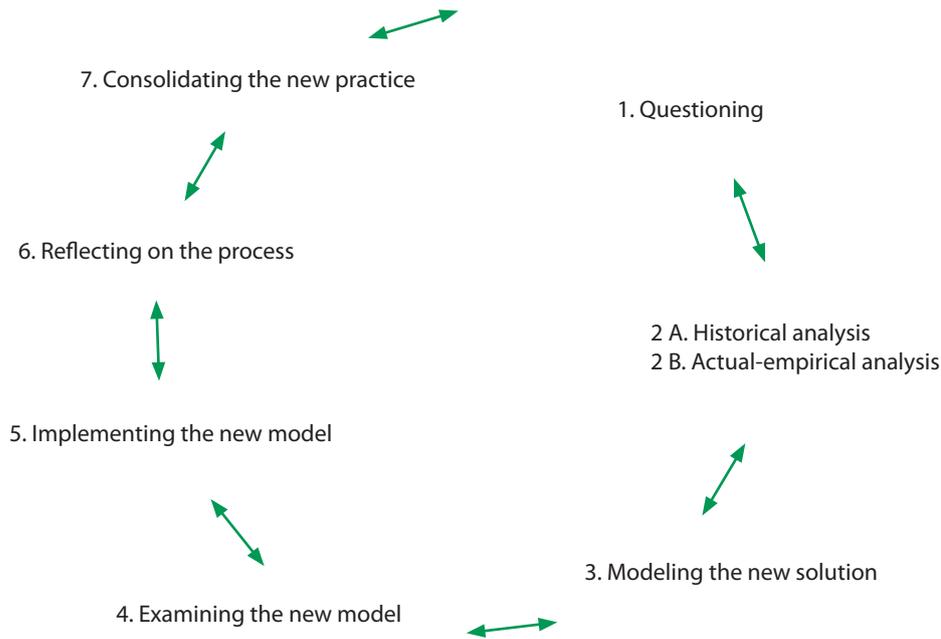
system model while the past can be described as a cycle of consecutive reorganization and learning processes. The above-described historical and present activity analyses help the work community to look ahead for the future, as well, and define the immediate target zone for development. (ibid.) The next section gives more specific information about change laboratory.

2.3   Change laboratory

Virkkunen and colleagues (2001; see also a new book about change laboratory by Virkkunen & Newnham 2013) state that change laboratory is a participatory method, which can help a work community implement extensive changes in its way and culture of operation and constantly improve its activities. The method suits especially to such work settings which are challenged by continual changes and where old practices are no longer sufficient to meet the new demands but new practices have not yet been found (Virkkunen et al. 1997). It is believed, however, that the change can be accomplished by combining theory and praxis, conceptual and practical or the researcher's voice and the practitioners' voice. Hence, change laboratory activities mean that the participants' different ideas and viewpoints are brought into joint consideration, which may lead to innovative solutions, new practices and tools, and further help face the inevitable change. (ibid.)

Change laboratory is based on the intervention method and draws on Vygotsky's ideas of dual stimulation and re-mediation as well as on the concept of the zone of proximal development (Engeström et al. 1996). Moreover, it also builds on the model of the circle of expansive learning, which is used in change laboratory work as another theoretical tool besides the activity system model (Virkkunen et al. 2001). In brief, expansive learning refers to learning and/or practical improvement, where the practitioners themselves solve problems encountered at work, by interpreting the intent, object and outcomes of the work in a new way. On the other hand, change laboratory seeks to help practitioners outline the activities and intents as a whole instead of individual functions or immediate solutions. For this reason, it is also useful to perceive learning as expansive; as development of new tools, ways to divide labor, and rules as well as qualitative updating of activities which consists of several stages. A starting point is that the participants are aware of the need for change and are ready to work and strive for something new, as the developmental cycle may last even several years. (ibid.)

Expansive learning is often depicted as a cycle (Figure 2), which is manifested through specific epistemic or learning actions that illustrate a process known as "ascending from the abstract to the concrete". These actions form an expansive cycle or spiral. Typical actions are described as a seven-step process: questioning, analyzing, modeling, examining the model, implementing the model, reflecting on the process, and consolidating the new practice. Also the change laboratory process follows the cycle of expansive learning. (Engeström 1999.)

7. Consolidating the new practice

1. Questioning

6. Reflecting on the process

2 A. Historical analysis
2 B. Actual-empirical analysis

5. Implementing the new model

3. Modeling the new solution

4. Examining the new model

Figure 2. *Expansive learning cycle and learning actions (Engeström 1999, 384)*

The framework of change laboratory (Figure 3) is to be constructed as close as possible to the daily work of the participants, locating it in a room or space equipped with tools needed in laboratory work on the analysis and development of activities (Virkkunen et al. 2001). Moreover, the work environment of change laboratory is quite special, as the equipment and materials available enable participants to separate themselves from their daily work so that the atmosphere stimulates them to explore, reflect on and bring different points of view into joint consideration (so-called debate between viewpoints). It is supposed that the equipment is constantly upgraded by reshaping the old tools and creating new ones. A central tool, nevertheless, includes specific wall charts, which serve collaborative thinking roughly as follows. (ibid.)

The Mirror chart is used in change laboratory meetings for recording selectively participants' observations about the current work practice and its problems. Other mirror-type material is obtained by various means (interviews, video recordings etc.), revealing critical points, problematic features, and strengths and weaknesses in the current work practice (Virkkunen et al. 2001, 2). The Ideas and Tools chart, in turn, is dedicated to very practical principles, concepts, classifications, and frameworks applied at work, as well as ideas, concrete solutions and new tools arising from laboratory work. Finally, the third chart, called Model and Vision, is meant to display – drawing on the activity system model – "a theoretical description of the essential elements of the historically shaped work practice and their interrelationships, i.e. of the work practices as a system". The idea is that the model helps identify reasons for recurring disruptions and problems, and discover the structural tensions and contradictions of the current work practice. (ibid.)

Virkkunen and colleagues (2001) describe change laboratory working as comprising three stages, namely those of analysis, planning and experiment, but point out at the same time that also starting the change laboratory work is already a remarkable step as such, because then the need for development has been recognized and decisions have been taken to search for new solutions. On the other hand, in reality the work does not progress linearly stage by stage but goes rather back and forth
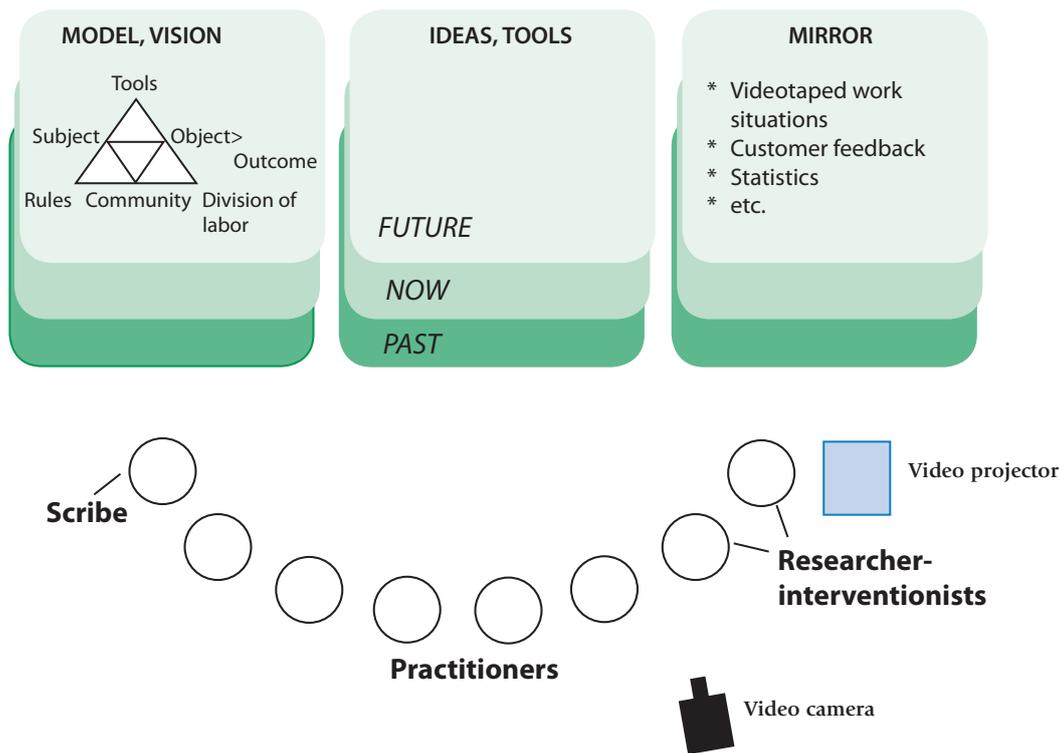
Figure 3. *Chart of change laboratory room (adapted from Virkkunen et al. 2001, 18).*

and is largely overlapping and interlaced. The analysis stage is characterized by the collection of the mirror material, which displays the problems and defects at work as observed by the members of the work community and give an overview of the current state of affairs. The current observations are then considered in relation to the basic principles and operational practice as a whole. On the other hand, the activity system model helps identify specific factors relative to the problems observed. In addition, the historical analysis of the work practice helps the participants set the current state in time perspective, while it may also reveal new things about the present and uncover possible internal contradictions in the activity system, so as to help explain the problems found. (ibid.)

Virkkunen and colleagues (2001) describe the planning stage of change laboratory work as a transition from current problems to the vision about a new activity system. The main interest is thus shifted to broadening and reconsidering the objects and outcomes of the activities. This may involve, for example, the question how the activities could best serve possible customers and society in general. At the same time with outlining the object, planning deals with the roles of other factors in the activity system as regards resolving conflicts. For this purpose elements are obtained from three sources: 1) the current practice includes usable elements for the new system, which when further elaborated may offer solutions for the problems, 2) the change laboratory participants have various developmental ideas, which may not have been, as yet, elaborated, tried or examined in collaboration, and 3) the community can perhaps learn something about the present problems by studying solutions accomplished elsewhere. (ibid.)

The final stage of change laboratory work as described by Virkkunen and colleagues (2001) is experimenting with the new activity model after previous planning and visions. This may eventually change the current practice. To succeed in this, it would be essential to choose such ideas for testing that when implemented could enable reforms affecting the whole practice. This calls for concrete operationalization of the ideas, turning them into practical solutions and agreeing on the terms of

the experiment, (e.g., what, how, when, who). Ideally, however, the experiment also reveals strengths and weaknesses in the new practice as well as new obstacles and impediments for change, which could not be anticipated at the planning stage. It is very likely that the original idea for solution will be refined and complemented in this process. Observations and other information gained through testing and operationalization with regard to the developmental targets and successfulness of the solutions play a central role in change laboratory work and its outcomes. (ibid.)

A further characteristic of change laboratory work is that the participants are required to assume an active role and interest in developing their own work and also willingness to critically evaluate their daily practices (Virkkunen et al. 2001). On the other hand, also the researcher-interventionist and/or researcher of the activities plays an important role in guiding and assisting the participants engaged in work-related analysis and development in the laboratory. This is consistent with the interventionist approach entailing active participation rather than staying in the background. Having a clearly active position, the researcher-interventionist is expected to introduce a conceptual model or tool by means of which the group members can detect such features in the material that they could not see solely on the basis of their work experience and common perceptions. The researcher-interventionist can resort to three kinds of tools: First, the researcher-interventionist obtains the mirror material in collaboration with the participants and can choose samples of this material to be used as the first tool. The second tool or instrument consists of questions and assignments the reseacher-interventionist sets to the group. After a while, these are coming up quite naturally in group discussions. The third tool, then again, comprises models and so-called intermediate conceptual aids, like descriptive charts and classifications of activities. (ibid.)

3

Aims and actors

The change laboratory project at the College relates to the OPCE-project and an investigation commissioned by the city of Helsinki and concerning the choices and services pertaining to the transition from the comprehensive school to secondary education for young people with an immigrant background. Thematically the project focuses especially on young immigrants' intercultural learning (see Teräs, Niemi, Stein & Välinoro 2010). The College-project aims to develop such pedagogic and didactic solutions that would support the learning of students with an immigrant background. The purpose is also to consider among the teachers participating in the laboratory work what kind of model could be designed for cultural learning in VET, and whether such a model is necessary or not. In addition, the project explores the quantity of students with an immigrant background enrolled in secondary education and what factors promote or hinder their placement in this respect (OPCE 2009). Furthermore, the project also addresses these young people's perceptions of the differences between their home culture and the mainstream culture with regard to education and work (ibid).

In sum, the aim is to investigate how well immigrant education is functioning, taking into account the needs of students with an immigrant background, workplace expectations, and education providers' (in this case the College's) possibilities to respond to these needs and expectations within the frame of the curriculum. Here, a core question is how each actor perceives the current situation; what factors have historically contributed to the present conditions, how they have changed with the years, and what kind of future we can expect in the light of the present state of affairs.

The aims can be translated into the following questions: How do education and teaching today meet the needs of students with an immigrant background and, on the other hand, those of the world of work? How do teachers perceive the needs of various groups of immigrant students? What kinds of tensions are identified in teaching activity? What kind of expertise they think is required from teachers, and how do teachers develop teaching practices in immigrant education? On the other hand, we could ask what is the object of their teaching activity, and what kind of tools teachers use at present and what kind of tools would be useful in the future?

The College is the largest College in the field of social and health care in Finland. It offers a range of programs leading to vocational or special vocational qualifications, but also preparatory training for immigrants and young people (immigrant training, vocational start-up courses) (College 2011). According to the enrolment figures, in 2010, the College had 2333 students, of whom 395 had an immigrant background. The number of staff is about 200 and it has two locations (Laakso and Malmi) in Helsinki. The College provides secondary education leading to vocational qualifications in the fields of nursing, pharmacy, and dental care. The College is nowadays part of the Helsinki Vocational College and its wellbeing sector.

The key players of the change laboratory activities include ten the College teachers from both Malmi (n=7) and Laakso (n=3). Each teacher is specialized in a particular field (nursing, education, social studies, special education, microbiology and aseptics, anatomy, physiology, and Finnish as a mother tongue and as a second language), while only part of them worked solely with immigrant groups, whereas some of them taught mixed groups. All teachers faced immigrant students in their daily work. At the time of the change laboratory work two of the teachers were teaching vocational start-up courses and some were involved in preparatory training for immigrants while the rest covered a range of different types of teaching duties. The teachers' experience of working with immigrant students ranged from about 2 to 20 years.

As regards change laboratory work and the collection of the mirror material, a secondary group of participants consists of students with an immigrant background, administrative staff and other the College teachers who were interviewed and videotaped. Two of these teachers also represent the viewpoints of the outside world of work, in a way, as they had only recently changed over to the teaching profession at the College.

Besides the change laboratory project, there were also other ongoing culturally sensitive projects at the College that relate to the development of teaching. These included the Kamut project, a developmental project dealing with immigrant training, and the AIMO-project. The Kamut-project seeks to support immigrant students by peer tutoring and by organizing multicultural training at the institute and at the sites of on-the-job learning. The development project on immigrant training is carried out in close collaboration with the labor market so as to introduce the students with the rules of Finnish working life. The aim of the AIMO-project (multicultural guidance for adult students) was to develop new guidance methods and tools for students with an immigrant background in order to prevent dropping out and strengthen the multicultural competence of teaching and guidance staff.

4

The Change laboratory process at the College

The main actions in starting the change laboratory project at the College included applying for a research permission and informing the College staff about the change laboratory activities. To set up the practical framework, we needed to arrange the times and places for meetings with volunteering participants and negotiate about teachers' resources with the College. When the meetings began, we started to collect mirror material, which is described more specifically in Section 4.1 below. At the same time the teachers started their work with the researchers. The meetings are reported more closely in Section 4.2. The change laboratory activities also involved an experiment (called the MM-room). Evaluation of the change laboratory process took place in February-March 2011.

4.1   Mirror material

Work-related information and observation data, or so-called mirror material, is used in change laboratory for specific purposes, for example so that some work-related problems or development targets or other topical issues are brought into joint consideration in the meetings (Virkkunen et al. 2001). The mirror material forms thus a set of concrete and experiential evidence of daily work practices and problematic features, and serves as a kind of primary stimulus for learning (ibid.) consistent with Vygotsky's idea of dual stimulation. To be able to understand and analyze the observations included in the mirror material, the participants need different kinds of analytical tools and exercises to help these efforts and serve as the second stimulus for learning (ibid.).

In the College-based change laboratory project materials were collected in three different ways: 1) by observing and videotaping the teachers' classes, 2) by interviewing each teacher involved in the laboratory work, students with an immigrant background, administrative staff and teachers who had come to the College from other jobs outside the College, and 3) by gathering reports, other documents, support materials and good practices from other places pertaining to immigrant training.

The interviews were conducted in the beginning of the change laboratory work, and the classes were videotaped in autumn 2010. All materials are listed in Tables 1 and 2.

Table 1. Interviews

	Interviewee(s)	Time and place	Length (minutes)
1.	Vice Rector	8.9.2010 Malmi	37
2.	5 students (group interview)	19.8.2010 Laakso	70
3.	Teacher of nursing	23.8.2010 Laakso	41
4.	Teacher of social studies and Teacher of education (pair interview)	19.8.2010 Laakso	50
5.	Head of Department	23.8.2010 Laakso	47
6.	Teacher of special education	19.8.2010 Malmi	27
7.	Teacher of special education	19.8.2010 Malmi	30
8.	Teacher of social studies	20.8.2010 Malmi	29
9.	Teacher of microbiology and aseptics	20.8.2010 Malmi	21
10.	Teacher of anatomy and physiology	20.8.2010 Malmi	19
11.	Head of department	20.8.2010 Malmi	32
12.	Teacher of mother tongue (Finnish as 2nd language courses)	23.8.2010 Malmi	25
13.	Teacher of nursing	22.9.2010 Laakso	34
14.	Teacher of nursing	5.10.2010 Malmi	34

Table 2. Class observation and video material

	Teacher of the observed class	Time and place	Group	Length
1.	Teacher of nursing	29.9.2010 08:30-12:30 Laakso	Practical nursing group 1	(samples of different lengths depending on what teachers wanted on tape)
2.	Teacher of education	30.9.2010 08:30-11:45 Laakso	Practical nursing group 2	(samples of different lengths depending on what teachers wanted on tape)
3.	Teacher of social studies	30.9.2010 12:30-15:00 Laakso	Practical nursing group 3	(samples of different lengths depending on what teachers wanted on tape)
4.	Teacher of social studies	4.10.2010 14:15-15:00 Laakso	Practical nursing group 4	(samples of different lengths depending on what teachers wanted on tape)
5.	Teacher of mother tongue, Finnish as 2nd language courses	20.10.2010 10:15- Malmi	Preparatory training group 1	(samples of different lengths depending on what teachers wanted on tape)

Materials were collected mainly by the researchers, but also teachers contributed to this, for example, by bringing to the meetings documents they found useful for their teaching, results from the questionnaires conducted by students and also some learning diaries of their students. The material was utilized in the change laboratory meetings by presenting findings, for instance by reviewing edited citations from the interviews to reflect contradictions of teaching activity. On the basis of the material the researchers also planned the agenda for the meetings, and sought to bring up for joint consideration disruptions and breakdowns encountered in daily work. They were also responsible for pacing the activities and keeping them on track within the agreed framework. In general, there are still numerous unsolved problems with immigrant education from the respective viewpoints of students, teachers, other staff, schools, and to an increasing extent, also from the viewpoint of other stakeholders and partners such as the on-the-job learning sites. This can be regarded as evidencing the need for the change laboratory project. An example of the collaboration in gathering the material and the open nature of the process, we can mention that two teachers requested and got copies of the video material recorded in their classes.

4.2   Change laboratory meetings

In autumn 2010 there were altogether seven change laboratory meetings and one in March 2011 (the evaluation session). The teachers met once in January 2011 to work on the experiment. The themes of these meetings followed the framework of change laboratory work proceeding from the analysis stage to planning and modeling to the experimenting and evaluating. All meetings except for one were held in Malmi, which meant that the three teachers from Laakso had to come over from their premises in Laakso (Table 3). The meetings lasted about two hours in the afternoon and included coffee service. The times, themes and participants are listed in Table 3 below, followed by a more detailed written description.

Table 3. Change laboratory meetings

	Time and place	Participants	Theme
1.	11.8.2010, 14:00-16:00 Malmi, meeting room	9 teachers + 2 (researcher and assistant)	• introduction of participants • overview of change laboratory working: introducing the working tools and models • schedule and agenda for the autumn term, agreeing on future activities • participants' expectations and questions
2.	26.8.2010, 14:00-16:00 Malmi, meeting room	7 + 2	Analysis of the current practice with the help of the mirror material: • identifying four types of tension areas: teaching work, cultural environment, working life, school community
3.	2.9.2010, 14:00-16:00 Malmi, meeting room	7 + 2	Historical analysis on three levels and analysis of current practice • history of immigrant training in general, in the College in specific, and teachers' individual histories working with immigrant students • changes in teaching work • tools of immigrant training e.g. different glossaries

4.	9.9.2010, 14:00-16:00 Malmi, meeting room	6 + 2	Starting to create the new model and planning of the experiment: • learning of vocations four field • emerging of the new object: cultural practices of the vocation • strand model starting to get its form • emergence of the collective experiment: MM-room
5.	15.9.2010, 14:00-16:00 Laakso, training kitchen	5 + 2	Going back to mirror material and planning the experiment • teachers' surveys to students • modeling preparatory training and start-up training with activity system model • potentials and obstacles of a web-based information bank
6.	5.10.2010, 14:00-16:00 Malmi, regular classroom	8 + 2	Working on the experiment: creating the MM-room
7.	19.10.2010, 14:00-16:00 Malmi, meeting room and ICT lab	7 + 2	Working on the experiment and MM-room and testing the new strand model: • how it can solve tensions identified in the second session • planning the future steps
8.	24.3.2011, 13:00-15:30 Malmi, regular classroom	6 + 1	Evaluation of the change laboratory process • current practices • trajectory of the process

1st meeting

The purpose of the first change laboratory meeting was to get to know the participating teachers, and introduce them with change laboratory work as a developmental method, exchange ideas about initial expectations and wishes, and discuss and decide on the schedule, agenda and future activities for the series of meetings for the autumn. Some of the teachers knew each other from before or even worked in the same team, but this did not apply to everyone. The meeting room had a large table in the middle and the participants were seated around it. The charts dedicated to Mirror material, Ideas and Tools, and Model were placed on the wall. Research assistant was chosen to act as a scribe and to write down issues on the charts. In addition, the room was equipped with a video projector, which was used in the beginning of each meeting as an aid for the researcher's introductions. In the first meeting the researcher directed the discussion which was nevertheless fairly free by nature. The teachers were mostly active and spontaneous and the discourse went on also without formally requested turns of speech. Each teacher got an opportunity to speak at least once during the meeting in order to introduce themselves and describe their feelings at the outset.

Moreover, a teacher was chosen to write a memo of the first meeting and it was to be sent to all participants. This practice was sustained in later meetings as well. It should be noted that some teachers who had volunteered for the laboratory work never showed up in the meetings and, on the other hand, two teachers came along after the meetings had started. As for the framework of laboratory activities, it was jointly agreed that the researcher would give the teachers a small intermediate assignment at the end of each meeting for them to think about for the next meeting. Communication within the change laboratory team would take place in the virtual environment of the College called Fronter, which the teachers were already using. It soon turned out, however, that Fronter was not used actively by the teachers in practice for the laboratory activities, but the

researchers kept adding change laboratory materials to this platform throughout the laboratory sessions.

The first meeting dealt very largely with immigrant education and at least the following topics were mentioned in the discussions: first and second generation immigrants, information and awareness within the College, studying Finnish as the second language, cultural issues, transition stages in education, co-operation between school and the workplace, training for workplace instructors, conflicting attitudes and discrimination issues relative to immigrant education, differences and similarities between mainstream students and those with an immigrant background, assessment of vocational competence, differences between the Malmi- and Laakso-based units in immigrant education, timetables, and the strategies and commitment of the College management. The discussion fluctuated; in the following example the teacher is pondering different experiences in immigrant training.

Excerpt 1:

Teacher 4[1]: *And admittedly also teachers have a different type of attitude to immigrant teaching. Some don't want to teach, some are puzzled that what should I do to make them learn and some have experience, some not. (…) Some teachers couldn't care less or say that we must teach in the same way or it would be inequality and I think there's just terribly much room for development.*

At the end of the first meetings the teachers received the following assignment: *Write down things that in your opinion need to be solved specifically concerning teaching and education for immigrants at the College*.

2nd meeting

The theme of the second laboratory meeting was an analysis of the current practice. First, the researcher presented the agenda, which was roughly as follows: reading the memo, debriefing of the assignment, immigrant teaching as an activity, tensions in the current teaching work in the light of the previous meeting and interviews, and presenting the next assignment. The researcher then introduced the model of activity system and suggested that the activity system to be considered in the project could be teaching work. The interviews conducted after the first laboratory meeting and the initial analyses there of had brought up four separate, yet in practice overlapping domains with respective tensions, which the researcher now presented asking whether these matched with the teachers' perceptions. The four domains were identified as 1) the world of work, 2) teaching work, 3) school community, and 4) culture. Teachers agreed with these findings.

Next, the meeting discussed, once again, the tensions occurring in these domains, now based on the preliminary analyses of the mirror material and the first meeting. A number of tensions were brought into joint consideration in the form of edited samples from the interviews as manifestations of contradictions in their activity system as follows:

1) The world of work

- student's learning vs. nursing
- teacher's role and division of labor vs. workplace instructor's role and division of labor
- College rules vs. workplace rules.

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[1]   Numbers refer to individual teachers; (...) words omitted from the turn, however, keeping the speaker's original idea; [word] words added to the turn to make it more understandable to the reader.

Excerpt 2:

Teacher 7: *For example the id celebration is a sort of exciting practice that what is our stand on it as teachers and what is the stand at the workplace? (…) can you get one day, two days, three days off? (…) so that we should have a common rule at the College or then how do we negotiate it with the workplace? (…) Can we say that if you're at school the College grants one day or whatever it grants or then if you're at the workplace is it then so that the employer decides so that we cannot intervene in it? (…) What might be the right way to address these? (…) that these are terribly difficult.*

In this excerpt the teacher is pondering rules and practices of the school and workplaces and that is not easy to combine them and to know what to do.

2) Teaching work

- learning the language vs. learning the "content"
- focus areas vs. general knowledge
- language proficiency vs. language learning
- teacher's prejudice attitude to the student vs. teacher treating the student as an individual
- assessment of learning vs. assessment of competence.

First there is an excerpt 3 from a student's interview when the student reflected learning Finnish and subject matters at the same time then (excerpt 4) shows a teacher's perspective.

Excerpt 3:

Student 1: *Don't know Finnish well then it gets difficult this teaching. I always have my dictionary near me and always looks for, needs time.*

Excerpt 4:

Teacher 5: *And then, there are so much subject matters, and one proceeds so quickly, I start to think that it would be important to notice all students, so easily those who are quiet remain in margins (…) and when I ask "did you understand?" they always say "yes". But they didn't. (…) I don't even get to know during my lesson, what is their language level until the exam comes. Then I see and oh boy!*

Here the professional subject matter teacher is telling her experiences about teaching immigrant students in Finnish and how difficult it is to evaluate the language level of them.

3) School community

- daily work in practice vs. implementing the school's strategy
- regarding resources; teacher's time spent on a native speaker's learning vs. a non-native speaker's learning
- regarding school's financial resources; students admitted to courses with lower language proficiency vs. always the same language requirements for the applicants
- support measures vs. teaching work.

In the next excerpt 5 the teacher is reflecting need of support services and how resources at school are distributed:

Excerpt 5:

Teacher 3: *And then there is this question of resources, at least in adult education which is business-based, how much support services are included, (...), many time it feels that they are very insufficient, for example, there is only little or not at all Finnish as a second language teaching.*

In this excerpt the teacher is referring to a primary type of contradiction, between use value and exchange value.

4) Culture

- practices of the mainstream culture vs. practices of a minority culture (tolerance/acceptance of dissimilarity)
- adjusting to the mainstream culture vs. maintaining the minority culture.

This next example was used as a mirror material in the meetings and reflects differences of learning practices.

Excerpt 6:

Student: *Of course I have* [a home country], *and sometimes I wish that this is like in my home country* (gives a laugh).

Researcher: (laughs) *What for example is different here, apart from the language, learning culture?*

Student: *The learning culture, yes, I mean how people study [in my home country]. Well, actually I am happy, this knowledge is coming so that we are doing quite a lot of discussions and poster work. There are such things that this knowledge comes but it not much stress. It is not like that you must know this, this and this from this page and now a test and now we shall write. It's not like that. At least knowledge is coming because I noticed when I was in my home country in the summer and talked with a friend of mine she is a mother tongue teacher. She wanted to know what kind of education system there is in Finland and I told. I myself noticed that it is so much knowledge I got but it was so non-stressing a system it was, because we got to write an assignment, opinions or tell about this or this or a poster work or group work or homework, home groupwork or things like that but knowledge is coming for sure.*

In this excerpt the student points out different learning practices between the previous and current studies.

Looking at these contradictions from the perspective of the activity system model, we can see that some of these tensions occur within an activity system, i.e. as an internal conflict between different aspects such as language learning and content learning, for example. On the other hand, there are also contradictions between different activity systems, like in the case of tensions between school and work. When it comes to an internal conflict within an activity system, we need to define the aspects concerned (e.g. language learning vs. content learning), as the conflict may have to do with issues related to tools and the division of labor, for instance, but also with the issues of tools and object.

To illustrate the contradictions mentioned above, some excerpts from the teacher interviews are presented concerning the four domains. In the laboratory meeting these excerpts raised a lively discussion and in general the teachers were quite unanimous on the viewpoints highlighted in the excerpts, and there were no opposite comments. Rather, the discussion complemented the viewpoints and seemed to broaden the teachers' shared understanding of the field of immigrant education, while also shaping the starting points for the upcoming laboratory work.

At the end of the second meeting the researcher gave the teachers their assignment for the next meeting. Assignment 2: *Write down what changes have taken place in teaching work in terms of tools, rules, target, community, division of labor etc. since you started your work as a teacher.*

3rd meeting

Like the previous one, also the third meeting was part of the analysis stage of change laboratory work, now shifting the focus from the current situation onto historical analysis of the development of the activities up to the present state. The topic was approached at three levels: immigrant education, in general, immigrant education at the College, and the teachers' own history of immigrant education. Large sheets of paper with respective time scales for each level were attached on the wall and the researcher used them to write down things based on teachers' descriptions. The general and the College-based development histories of immigrant education were marked on the time scales under the researcher's direction but in collaboration with the teachers. After this the teachers took turns to describe their own histories regarding immigrant education and the researcher recorded these on the third time scale. Like previously, the discussion went on in a fairly free format and with some sidetracks, but the researcher always brought it back to the relevant historical framework.

Towards the end of the meeting, the current state gained greater emphasis and the researcher launched joint consideration of the tools used in immigrant education. These include, for example, various vocational and simplified glossaries. The researcher had picked up a sample of four websites that offered tools for persons teaching students with an immigrant background. In addition, the teachers told about the tools they used in their work, mostly corresponding glossaries, comparing their differences and similarities, availability and usability, applicability, usefulness and related practical experiences. This discussion was once again enlivened with numerous examples given by the teachers, aptly illustrating the challenges and contradictions faced in daily work. The teachers described very concretely the prevailing conditions and resource issues, and found it important to compile (e.g. on the Fronter website or on a server) some material on what tools a teacher needs when facing students with an immigrant background. They also considered that editing glossaries like those mentioned above and collecting existing material (produced by different organizations, schools and projects) to one place would make teachers' work much easier. This was the seed of the experiment that the teachers introduced for the first time in the laboratory as the excerpt shows. This seed was later developed into an experiment called MM-room (corresponding IR-room "immigrant room" in Finnish). The next excerpt 7 shows how one teacher put forward the idea of a collective experiment: a databank of materials concerning immigration and intercultural/multicultural issues so that all teachers benefit from the change laboratory process. This suggestion was positively received by other participants.

Excerpt 7.

Teacher 10: *Here I'd like to say that I've got greetings, I've talked to several people that I'm coming here [to change laboratory meeting]. It's this: what is the gain also for the community which is connected to teaching of immigrants. And from where knowledge of what we've been doing can be found. So, some kind of list of links from the Fronter? [the web-based learning environment at the College]*

(…)

Teacher 9: I think it would be interesting, if we could agree on one thing, on one project that would be interesting enough to all of us. We are so few here [in the meeting] and we don't have much time [referring to resources the teachers got for the process]. It really would be a kind of issue that all teachers, well we all who are here we get it and then we know, but other teachers at the College could get it from there [referring to databank].

The Fronter was used in the change laboratory as a databank of what was done in the meetings. But as this excerpt shows also those teachers who could not participate into the meeting were interested in change laboratory process. The teachers agreed on this experiment and later evolved the idea further.

A critical point brought up by the teachers was that a change can be regarded as permanent only when it is extended to the structures of the school. Before this happens, individual efforts to bring changes rest on the activity of individual teachers. On the other hand, also the amount of changes causes trouble, since new changes are coming up already whilst the previous ones are still being piloted. According to the teachers, this shows in the daily life of students with an immigrant background, for instance, so that the objectives of a new curriculum are not always realistic in practice. This brings about "too much stress and agony" to students so that studying becomes a matter of coping rather than learning. A teacher told that students often complain that "a terrible load of and terribly difficult assignments and projects".

When it comes to curricular reforms, teachers paid attention to the relation between the official curriculum and the hidden curriculum, which has been characterized as teacher's own interpretation and/or implementation. A teacher commented this by saying, however, that a curriculum is just an instrument for sharing knowledge and as such can be adapted by teachers. In fact, in the meeting the teachers were asking what is "the connotative message of their own pedagogy" and what kind of message the teacher conveys to the student about the way one should delve into assignments, for example, bearing in mind "the limitations of human cognitive capacity".

In outlining possible solutions, the teachers were also looking back on the past and how in the earlier organization there was more of collaborative teaching and teachers could draw on their colleagues' expertise. This could be realized in the new curriculum so that teachers could now take joint responsibility for projects. In reality, however, "there's something wrong with resource allocation", and there seems to be no time for teachers' joint planning.

Besides students' point of view, the teachers talked about changes in teacher's work over a period of about two decades, mentioning at least the following ones: the amount of papers, feedback and reports has increased, data systems take much of teachers' time, more and more of different electronic systems are introduced all the time, and work in secondary education has thus expanded. This "extra work" does not show anywhere, because it has been ignored in resource budgeting. Nowadays teachers have less time for students. Other changes included transition to "networking", and instead of textbooks, the main tools are now computers and the Internet. Moreover, teachers need to allocate their time resources across many different projects.

The teachers also sought for some solutions for the problems recognized with respect to changes in their work. At this point, orientation of new staff raised a lot of discussion. In addition, the teachers highlighted the importance of the commitment of the College management, especially for resource matters. Another essential point was better training for teachers responsible for new staff's orientation, so as to ensure that information about immigrant education would reach the staff as widely as possible.

The meeting somewhat agreed that the upcoming experiment stage could possibly focus on compiling a shared database or material pool. Assignment 3 for the teachers was related to the upcoming stage: *What are you going to try out explain your choice and how it relates to immigrant education. What developmental conflict does this experiment attempt to solve? How are students involved in this experiment?*

4th meeting

The fourth meeting dealt mostly with planning for the shared experiment in practice. The researcher directed the work based on the issues discussed in the previous meeting, attempting thus to highlight its process nature. For example, the four field of vocational learning was introduced to reflect different models of learning a vocation (see Figure 4, see also Teräs 2013). From activity theoretical point of view a new object was emerging: instead of subject matters, cultural practices of a vocation was introduced as the object of learning. Also the term 'strand' was brought up to represent the different intertwined elements of a vocation. A strand, according to Oxford dictionary, has a double meaning. On the one hand it is a single thin peace of thread, and on the other it can be one of different parts. Strands can be twisted together to form a rope, for example, and they can be separated into smaller elements as well. In immigrant vocational training, at least, four strands are intertwined: language learning, work-related learning, cultural learning, and learning of different vocational subjects. But also one strand could be separated and examined carefully such as language or one professional subject.

The idea behind the model was that if the object of learning was to learn professional practice as a whole in terms of cultural practices, then the tools to facilitate this could include synchronized teaching, various glossaries, simplified language, genuine learning environments (like on-the-job learning sites), and meaningful learning assignments. In figure 4 the model is reflected. On vertical axis there is learning vs. performing and on horizontal axis individual subjects vs. cultural practices of a vocation. The idea that when the students were loaded with different tasks from teachers is rather performing and getting grades than learning, came from one of the teachers as the following excerpt 8 shows.
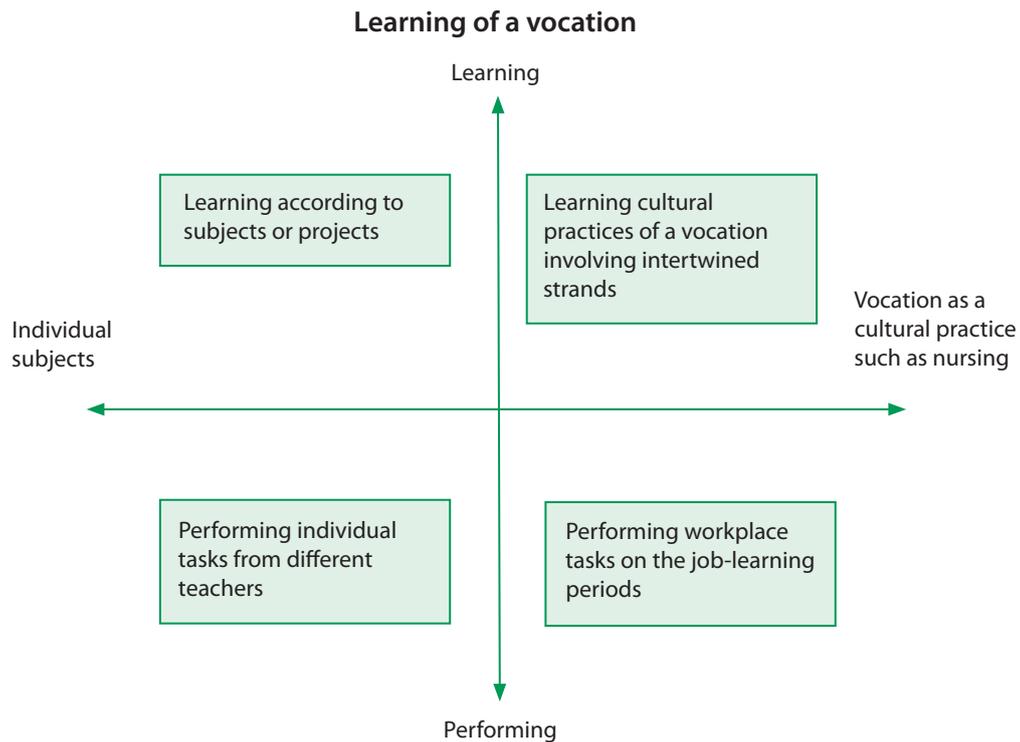
Excerpt 8.

Teacher 2: *We talked with N [name of another teacher] in the morning and I said that I felt after yesterday that it's not learning but it's rather performing.*

The teachers were talking about what kinds of tasks students had been given earlier. They agreed that they were too many. The teachers gave examples from their daily life when they reflected the four field. For example, project-based learning had become popular at the College.

The model raised a fruitful further dialogue, although the term 'strand' never took root in teachers' talk, while they were considering more and more broadly the position of mainstream and immigrant students in education. Under this theme, the teachers discussed about the differences between these student groups, what kind of differences can be detected in their performance levels upon admission and in later studies, and how individual teachers at the College approach, perceive and face students with an immigrant background. The teachers pointed out a variation in different teachers' attitudes within the College. This triggered further accounts of cases where an immigrant background had had a negative effect and led even to dropping out as the next excerpt 9 shows.

Excerpt 9.

Teacher 4: *These cultural strands, too, and bringing them forward. I think also what kind of attitudes we all have. There is this one example, which I probably already told, and I still feel angry and terrified. One student resigned from our school because one teacher was bullying her.*

Learning of a vocation

Learning

Learning according to subjects or projects

Learning cultural practices of a vocation involving intertwined strands

Individual subjects

Vocation as a cultural practice such as nursing

Performing individual tasks from different teachers

Performing workplace tasks on the job-learning periods

Performing

Figure 4. Four field of vocational education (Teräs 2013, 260)

Also the following things as typical factors of daily work came up repeatedly in these discussions. It is impossible to apply a uniform teaching model for both mainstream and immigrant students, because students with an immigrant background need more support from teachers. In addition, a teacher should approach each student individually, keeping in mind the student's learning path, among other things, which is a "shocking demand" under the present circumstances. On the other hand, some teachers at the College are not willing to recognize that students with an immigrant background would need more support but these teachers call for adaptation, above all, and that all students would have reached the standard starting level of mainstream students as an admission requirement. This was found partly problematic in teacher discussions. It was generally commented that teachers lack knowledge about immigrants' situation and this could perhaps be remedied by providing additional training for teachers so as to improve students' position. The teachers also described the present situation as a "staggering equation" and as frustrating, because they do not have enough time to support each student with an immigrant background. Therefore, the teacher is forced to make choices, for example, whether to attempt broad-based teaching or to concentrate just on the bare essentials. On the other hand, teaching students with an immigrant background gave the teacher a chance to use his/her creativity, and in some cases these students had better learning motivation than the mainstream students.

The teachers also discussed much about choices relative to vocational learning and teaching, which teachers have to make in their work. In the same vein with the researcher's introduction, they talked about making cultural knowledge and encounters visible and also about the role of language skills in VET. They pointed out the usefulness of various glossaries, but also their inadequacies, and stressed the lack of means as felt by teachers. In conclusion, they suggested that a possible solution for facing students coming from a different cultural background could be found in shared tools and

knowledge. Language skills was a major topic in each meeting and it was quite consistently addressed as a kind of barrier to learning and teaching, perceived as causing problems at the College as well as at the workplace.

In the fourth meeting the experiment began to take shape, after all, while the teachers' discussions concentrated more and more often on the development of a Fronter-based databank and "information package" so that the themes to be included in the package were repeated with growing clarity. At least the following starting points were proposed for the information package: it should account for the ongoing study periods, both teachers and students would collect material in a versatile manner (e.g. by videotaping situations found difficult in on-the-job learning periods), to open up problem experiences and make use of them, peer learning, to collect glossaries together, modeling of immigrant and vocational start-up training, making use of the College non-teaching staff's experiences, hearing the voice of "a foreign student", survey of the expectations of vocational subjects and Finnish language teachers, and checking possible overlaps in their work. In addition to these, the teachers mentioned that transferring an "authentic piece" from the workplace to the College was perceived as a potentially useful means to address intercultural learning. In terms of activity theory, this reflects the emergence of a new shared object: cultural practices of caring and nursing. This was crystallized in the strand model.

Another solution was to apply the "minimum model", i.e. to teach just the essentials when training for the design of care plans. In order to carry out an experiment, they decided to start to test their ideas and collect material and/or launch experiments or partial solutions to support their ideas, for example, by conducting short questionnaires to students, surveying situations difficult for students, and on the other hand by asking what their teacher colleagues would wish to find in Fronter as regards immigrant education.

The fourth assignment strongly encouraged the teachers to think about the upcoming experiment.

5th meeting

The fifth meeting dealt with both planning and experimenting. And besides on the respective charts of Mirror and Ideas and Tools, the group worked on the Model chart, modeling immigrant and start-up training in a tabular format and considering their differences and similarities (Table 4). The researcher briefly introduced the agenda, and also expressed that the responsibility was increasingly on the teachers developing their own work. The teachers presented material they had collected, such as the results of student questionnaires. These were discussed, although not very deeply. The results were fairly consistent with the teachers' views and were considered to support the viewpoints of immigrant education as elaborated and shared in the laboratory work.

These teacher-collected student responses brought up the following main points: Difficult aspects reported by students with an immigrant background include studying in Finnish, teachers changing frequently (see Excerpt 10), too large courses as well as writing, listening and understanding assignments in Finnish. Positive points were that all materials needed in studies are available at the College and that teachers speak clearly and have patience to explain the matters to students. In addition they wished for more practice and teaching of the Finnish language and that teachers would return students' assignments and give feedback. According to another questionnaire, the students had not got the learning material they wished, and they also found that there were really plenty of learning assignments to do.

Excerpt 10.

Teacher 3: *Here it is difficult to study in Finnish, and there have been many different teachers, and they have different styles in teaching. In this group the teachers' turnover has been big. In the autumn I calculated that they have had total of 12 or 13 different teachers. There can be different teachers even within one subject matter and within one module there can be three teachers, for example, in health care within one module. That's a crappy thing.*

In response to these challenges the teachers came to think about teaching methods and views of learning and arrived at the conclusion that they could let students work in peace in class so that the teacher should not speak and write at the same time, providing, however, that they are attentive and copy the teacher's notes. A teacher suggested that teachers should be forbidden to speak and write at the same time and students should not be made to copy what the teacher is writing. As for ways to facilitate students' working, the teachers propose that the teacher should upload the learning materials to Fronter before the class, teaching methods should vary, and classes could follow a pattern like this: 1) orientation to the topic, 2) main discussion, and 3) repetition.

The meeting thus ended up to discuss teachers' views of learning and teacher's relation to the teaching method, courage to try out different methods, and what it takes to get a new teaching method disseminated. By combining these topics the teachers went on to talk about value-based fading of immigrant status and about the current debate on inclusion and integration, and further about the repercussions of segregation debate to immigrant education. The teachers found that immigrant education requires much more from the teacher than working with mainstream groups, but considered the notion of fading differences away harmful. Because then different needs of immigrant students can be overruled or not heard to, and needs of the majority could be taken for granted.

The purpose of modeling was to get a picture of the way the teachers were now, in the fifth meeting, outlining the central factors of immigrant education, including preparatory immigrant training and vocational start-up courses, in terms of the object of activity, tools, rules, division of labor, and community. At the end of the meeting the teachers jointly drafted the Table 4 below reflecting with the activity-system model the differences between start-up training and preparatory immigrant training.

With relation to the experiment the researcher asked the teachers about future working on it and inquired who could take responsibility for the shared site in Fronter and the further development of the information package to be constructed there. Also issues such as what kind of structure would be good, how other teachers of the College could be acquainted with this new Fronter site and how the staff should be informed about it in general, were discussed about. Teachers then came up with the following ideas for rooms to be included in the site: teachers' room (with information sheets, for instance), a student hall (with various rooms, like a clinic with video material from authentic situations or students' accounts of personal experiences), and a library. In addition, the rooms should feature links to existing materials and relevant websites. With this respect the teachers recognized the fact that such material tends to become outdated relatively soon. It was then discussed who would be the right person to update the Fronter site. On the other hand, they pointed out that video material will not get outdated as quickly as references to some public sites, for example. As for informing people about the Fronter site, the teachers suggested the following measures: information should be spread by various means and through multiple channels; a trailer could be uploaded to YouTube; they could have a small sticker advertising the Fronter site and to be distributed to teachers; head of department could meet new teachers "face-to-face" and tell them about the immigrant students at

Table 4. *Model of preparatory immigrant training and vocational start-up courses*

	Preparatory immigrant training	Start-up
Subject	• student • "instructors"	• student • "instructors"
Object	• preparation for future • offering alternatives • learning of language, culture and tools • tasks, school culture, community • outcome: competencies for further studies and life	• tasks and community • learning and life skills • outcome: career plan, "what I'm going to do after this" • outcome: competencies for further studies and life
Tools	• material given by teacher • assignments • Finnish language • ICT equipment and applications • cell phone	• material given by teacher assignments • ICT equipment and applications • cell phone
Rules	• SMS not allowed in reporting absence due to illness • curriculum • school rules • legislation • privacy	• SMS not allowed in reporting absence due to illness • curriculum • school rules • legislation • privacy
Division of labor	• co-operation between teacher and student • division of labor between teachers and instructors according to subjects	• co-operation between teacher and student • division of labor between teachers and instructors according to subjects
Community	• class community • school community • work community • family/guardian	• class community • school community • work community • family/guardian

the College and about available guidelines. For those interested in the development of immigrant education; and there could be a half-day seminar on pedagogy. Advertising could be further enhanced if the evolving Fronter site would be productized and further funding would be applied for the project. There were no an intermediate task for the participants after the fifth meeting.

6th meeting

Also the sixth meeting involved both planning and experiment stages. In the beginning some points based on the previous meeting were discussed so as to offer the teachers some useful viewpoints for the implementation of the experiment. The researcher focused attention specifically to how the experiment would resolve tensions that the teachers had identified in the first and second meeting and, for example what kind of pedagogic solutions the experiment could possibly entail. Once again, she brought to joint consideration the notion of language learning both as an object of learning and as a tool for learning, and on the other hand, vocational cultural practices and vocational subjects as objects of learning. Also the idea of making cultural practices visible versus taking them for granted was discussed about. In addition, teachers' previous discussions were cited with the help of extracts, giving them thus a chance to review their own ideas in support of the experiment-related choices. There were plenty of extracts and the teachers seemed to mostly agree with the message conveyed regarding the current state of affairs, as the comments presented in this meeting were mainly supplementary to these observations.

After this, the teachers started to work on the Fronter site so that one of them logged in and the group collaboratively created a site with a working title MM-room. In the next excerpt 11 the teacher ponders the contents of MM-room and how other teachers would find the room attractive too.

Excerpt 11.

Teacher 6: *When we start to work on the MM-room, and when we start to structure all things that have come up here now [in the change laboratory], what we want to put into the room. It's just a thought that how could we get people enthusiastic and get then to visit the room, so, one thing could be that the titles would be kind of catchy. And maybe we could use a little like tabloid terms, some kinds of slogans which would be attractive to click in. Like oh, what does that mean?*

During the discussion about the MM-room, the researcher withdrew deliberately to the background leaving the group and the Fronter display on the screen in the center. In constructing the site the teachers considered its usability, attractiveness, contents and appearance. Also the following ideas were suggested and elaborated amidst working: MM-room would include pictures, sound and videos, separate rooms for teachers and students, the materials would contain both formal and informal language, case examples for teachers. In addition, the teachers suggested that the site should also cater for simplified material, because the existing material, like some textbooks and criteria for competence-based examinations, are for some parts too difficult to students with an immigrant background. On the other hand, it would be good to make use of the existing materials in the evolving MM-room as well. At this point a teacher reminded about the existing Finnish as a second language room for students, which could possibly be expanded. Another teacher pointed out the possibility that teachers and students could co-operate in "deciphering", with the aid of glossaries, the criteria of competence-based examinations.

By the end of the sixth meeting the teachers had constructed the MM-room. It was agreed that for the time being it would be worked on only by certain persons with editing rights, including the researcher, assistant and teachers involved in the change laboratory work, and some other teachers and a school assistant at the College. So far, the MM-room featured a number of subheadings to be elaborated in the next meeting. No individual responsibility areas were established at this point. The subheadings are displayed below.

MM-ROOM
- Start here (introduction)
- Material pool (simplified materials, glossaries)
- KTO [referring to the name of first study module] Finnish language, education
- HOH [name of the second module]
- KUNT [name of the third module]
- Links
- Ask a colleague
- This has helped
- Learning on-the-job
- Evidence of vocational competence
- Adult qualification samples
- Video clips, photos
- Cultural encounters (a surprise in class, discrimination and racism)
- How to support students
- Feedback from students

It should be noted here that a teacher apparently got frustrated by the laboratory work, because she left the meeting early and did not come to the next one.

Assignment 6 requested the teachers to operate on a very concrete level in order to advance the experiment: *Visit the Fronter site and upload there such links, images, and materials that have been of help to you.*

7th meeting

The seventh and last meeting in 2010 was held in Malmi, this time starting in the familiar meeting room but continuing in a computer lab, where the teachers worked in pairs at the workstations. Each pair worked on a specific part of the MM-site. In the beginning of the meeting two teachers told they had attended a training course on intercultural encounters and teaching. The researcher asked them what they had learnt in the course, and the other teachers were browsing some training materials these two had brought along from the course. This triggered a brief discussion about cultures. An interesting question was raised for joint consideration: Is a teacher culturally incompetent if he or she treats a student as an equal and ″makes the student think about things by him/herself″ and does not, for example, teach authoritatively students who are used to such an approach in their own culture?

Because the laboratory work had advanced to the experiment stage, the researcher had to repeatedly bring the discussion back to the upcoming experiment and its realization. In the computer lab the MM room was displayed on the screen. So there were no sessions for joint consideration or planning at this point, except for some questions directed to the whole group. In the end the teachers agreed on their future working on the MM-room, and the researcher thanked them for the development work accomplished so far, referring also to the further efforts in the spring term of 2011.

After the last laboratory meeting in 2010 the teachers started to put the experiment into practice and develop a virtual Fronter environment to serve teachers in attempt to better account for the present and future needs of students with an immigrant background as well as teachers' possibilities to

respond to these challenges. The teachers met once in January 2011 to continue to work on the MM-room with the help of a Fronter specialist. None of the researchers were at the meeting.

Evaluation of the change laboratory process, the 8th meeting

In the change laboratory–process plenty of research material was collected by observation, interviews, gathering relevant documents and also by change laboratory meetings conducted with an interventionist approach. All these meetings and classes were recorded on video and audio. The interviews were audio recorded accompanied with related observation notes written by the researcher or her assistant. In the meetings a teacher in turn drafted a memo on the discussions and the assistant recorded teachers' work in the respective charts of Mirror, Ideas and Tools, and Model, which were uploaded to a shared Fronter site after each meeting. In two meetings the assistant also photographed the participants at work.

The analysis of the material covered the whole change laboratory process so that the mirror materials – meetings, documents, video recorded classes and interviews – were brought to meetings for joint consideration. Most of the mirror materials were collected by the researcher and her assistant but also the teachers contributed to this by bringing in documents and questionnaires for their students and colleagues. The mirror material and related interpretations have thus shaped the process through phased and continuous analysis.

Before the evaluation meeting in March 2011 all participants were interviewed about the process and their conceptions about the change laboratory (interview themes in Appendix 3). Interviews were done by a research assistant who had not attended in the change laboratory meetings or who was not familiar with the process.

In individual interviews, the teachers brought up frustration with tight timetables during the change laboratory process. All were worried, because they could not attend every meeting because of other engagements. Fusing teaching and development work was also difficult. The teachers were also critical about the IT, they felt that the Fronter-based MM-room was not flexible and efficient enough; they would have liked more open and interactive web environment. They brought up the issue of working life, they felt that working life perspective was not involved in the change laboratory process as much as they had hoped for. Positive feedback the teachers gave about discussions in the laboratory and getting to know each other as well as networking. Furthermore, they felt they had a more holistic picture about immigrant training and also they had updated their information about it, the material in the MM-room also got good feedback. All interviewees brought up their concern about how to go on after the change laboratory, because the model and experiment were not ready.

From developmental work research point of view, the process proceeded to the third and fourth learning action: modeling the new solution and examining the new model (see Figure 2 Expansive learning cycle). The teachers started to examine the new model, but not implement it during the change laboratory process. When the process was reflected on, the new model was again discussed but the teachers were more focusing on the experiment and MM-room than the model at the phase.

The evaluation meeting started with participants' reflections on the process and they told about their current work and projects because there had been over 5 months in between the previous session. Not everyone was participating in January meeting. The trajectory of the change laboratory process was discussed about: starting from the first meeting and looking for future actions. The teachers discussed about two possible ways to continue development work: a new project that would use the material produced in the change laboratory or a continuation of the experiment and finishing the MM room. The next excerpt 12 shows what two teachers thought about the meetings.

Excerpt 12.

Teacher 6: *Yeah, I also agree that it has been really nice to exchange ideas and discuss with you. I've somehow got a more holistic picture about these issues and what is also happening at the College, or at least a little glimpse of it.*

(…)

Teacher 9: *I also think that I'd like to continue this work and further develop it, what we've done and those issues that emerged from it. It would be great.*

The rest of the session was invested in considering what kind of possibilities there were to continue the development work. It was agreed on that a new project would be the way to continue the work and at the end of the meeting the teachers wrote an email to the management of the College asking for a continuation of the change laboratory process. They formulated it and wanted this time to focus on working life and issues they faced there with students.

5
Research ethics

First the research permit was applied from the Education Department of the City of Helsinki. Second, an email was sent to all teachers of the College to invite them to participate voluntarily into the project, along with information about the project. When documenting the research material all participants were told about the project, given a handout and asked for a written consent (Appendix 1). This procedure applied to all participants and interviewees in the change laboratory project. As regards video recording the classes, it was handled so that the teacher of each class told the students in advance about the upcoming class to be recorded. After this the research assistant visited the class on a set date, told about the project, distributed handouts, answered to questions, and asked if it was all right to everyone that the class would be recorded on video. If a student did not want to be videoed, the camera was placed in the back of the classroom so that only the backs of students are seen on the video. There were altogether three students who chose this option and so this procedure was applied in the classes of two groups. The study complied with the ethical guidelines issued by the University of Helsinki for behavioural sciences and according to guidelines of the Education Department.

6
Summary and conclusion

This report reflected first the overall situation of immigrants in Finland and then focused on educational issues for them. Second it elaborated theoretical background and methodology of the change laboratory process including cultural-historical activity theory and developmental work research. Third, the change laboratory process at the Helsinki City College of Social and Health Care was described in detail.

The change laboratory process took total of seven months from August 2010 to March 2011. The participants consisted of ten professional teachers from different subject areas such as social sciences, Finnish language, education and health care. There were total of 8 meetings and one meeting in which the researchers were not present. During that meeting the teachers worked on the experiment, an internet-based databank for all teachers of the College, called the MM-room. The meetings were in interval of one to three weeks, and the evaluation meeting took place five months after the second last one. The meetings were hold mostly in a meeting room of the College but also in regular classrooms. The meetings lasted two to three hours in the afternoon. The mirror material gathered involved interviews of students, management and teachers, observations of the classes and videotaped classes.

The laboratory process followed the steps of the developmental work research and cycle of expansive learning starting from analysis of the current situation of immigrant training and ending to evaluation of the process. However, in terms of expansive learning actions the laboratory process proceeded into the fourth learning action: experimenting the model.

Four tension areas were recognized in the analysis of the current practices: working life, teaching work and especially language integrated content learning, practices of the College and cultural practices. Historical analysis took place on three levels: history of the immigrant training in general, and at the College in specific, and teachers' individual histories with immigrant students. Furthermore changes in teachers' work were recognized. A new object started to emerge: learning of cultural practices of a vocation instead of learning separate professional subjects. A new model called a strand model for intercultural vocational education and training was introduced to over-

come the identified tensions. A new collective experiment was started and the teachers began to work on the MM-room.

As a continuation of the change laboratory process the teachers made an initiative to the management of the College to establish a project. In it the emphasis would be on co-operation between the College and working life, which was one of the issues lacking from the change laboratory process. The mutual process of developing was important to the teachers and they wanted to continue it because they felt that they did not get it finished. In the last meeting the teachers sent an email to the management of the College and asked for continuation.

The change laboratory process was a fruitful process for the teachers and it expanded individual-based working practices towards more collective-based working practices. However, the process did not completed the cycle of expansive learning: the last learning actions were missing. To detect the continuation of the model and MM-room would be beneficial not only for the College but also for developmental work research, for example, to find out crucial elements and turning points of development work.

Change laboratory interventions are formative and contextual in nature, and they have limitations as well as strengths. For example, timing of the process is typically tight and it expands over several months, this was also criticized by the teachers. The strength of the method is that it gives the participants tools and structures, both theoretical and practical, that enable them to reflect on their work, practice and change. For example in this process recognition of the tension between language learning and subject-matter learning gave the participants the opportunity to conceptually map their work and to find solutions: in this case integrated teaching. This finding has both practical and theoretical credibility and could be reflected in other VET programmes and institutions. (see also Teräs & Lasonen 2013.)

In developmental work research projects three levels of findings can be achieved: 1) concrete changes in work, such as application of new methods or instruments and changes in staff's ways of thinking; 2) qualitative and quantitative findings, such as recognizing typical features and their interrelationships occurring at work; and 3) mediated conceptual devices, like concepts and models, that evolve in the combination of data analysis and general historical analysis (Engeström 1995). Based on this change laboratory process the following findings can be shown.

At the first level: The teachers started to develop the new instrument, the web based databank, to gather information and experiences of immigrant training. They also got new ideas from mutual discussions for the training, for example, a holistic view of immigrant training at the College. At the second level: Based on analysis of contradictions, the participants recognized and reflected on four areas that were important for immigrant training. But especially tension between language learning and subject-matter learning was crucial to teaching and needed to be resolved. At the third level the strand model is an example of this level finding.

Based on this change laboratory process the following conclusions can be drawn. First, developmental processes, such as the change laboratory process, can give the practitioners structure and tools to look at their everyday practices in a new way. Second, immigrant training needs new tools, practices and models to fulfill the needs of immigrant students and their teachers.

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Appendices

Appendix 1: *Handout for participants and a research consent form*

Handout for research participants   11.8.2010

Dear participant!

We are conducting a research and development project at Helsinki City College of Social and Health Care (College) in 2010-2011. This project is part of a larger OPCE program funded by the Academy of Finland (Recognition of immigrants' competencies and chances for employment), which aims to study to what extent Immigrants' competence is recognized and how it affects their employment, career development and access to education. The program is led by Professor Johanna Lasonen from the University of Jyväskylä (johanna.lasonen@jyu.fi). For more information about the program, see: http://ktl.jyu.fi/ktl/tutkimus/muutoksessa/opce

The project to be carried out at the College focuses on young immigrants' intercultural learning. The purpose is to develop such pedagogical solutions that support the learning of students with an immigrant background and to consider together what kind of model of cultural learning could be valid in vocational education, or whether it is necessary in the first place? In addition, the project explores e.g. the extent to which young people with an immigrant background are placed in secondary education and what factors hinder or promote such placement. The project is related to an investigation commissioned by the Immigration Department of the City of Helsinki, concerning the transitional solutions and services (transition from basic to secondary education) for young people with an immigrant background. Also the Centre of Youth Affairs and Education Department are involved in the project. This project is led by postdoctoral researcher Marianne Teräs and it also employs some university students.

In spring 2010 we have collected information about the situation of young people with an immigrant background by means of a questionnaire and also by interviewing young people, their parents, teachers and other staff. In autumn 2010 and spring 2011 we will organize a change laboratory project for the College teachers interested in the development of their own teaching, within the frame of which we will collect research material by observation, video recordings and interviews. In autumn 2010 we will interview the College teachers who teach immigrant groups and participate in the change laboratory project as well as students with an immigrant background. An interview will take about 30 minutes and takes place in the premises of the College. The change laboratory project with these interviews will be conducted by postdoctoral researcher Marianne Teräs and research assistant Maria Nuottokari, who is at the same time collecting material for her doctoral dissertation. Maria Nuottokari's doctoral study is supervised by Professor Kai Hakkarainen and postdoctoral researcher Marianne Teräs from the University of Helsinki.

Participation in this study is voluntary and all collected data are confidential. The data are made available only to the subject/interviewee and the persons conducting the research, and the results will be published so that no individual subjects can be identified.

If you have any questions about the change laboratory project, interviews or the dissertation study, we are pleased to answer them!

Best regards,

Marianne Teräs, FT, THM   Maria Nuottokari, KM
postdoctoral researcher   research assistant
University of Helsinki   University of Jyväskylä
marianne.teras@helsinki.fi   maria.nuottokari@helsinki.fi
050-415 6643   050-415 6635

Appendices

A consent regarding participation in the study
11.8.2010

I have received information about the research and development project "Recognition of immigrants' competence and chances for employment". I am free to cancel or suspend my participation in this study at any point. My results may be used in scientific reporting of the research and development project and related presentations (e.g., publications, conference papers and training purposes) in such form that no individual subject can be identified.

_____

Date   Subject's signature and name in block letters

_____

Date   If under 18, guardian's signature and name in block letters

_____

Date   Researcher's signature and name in block letters

You may contact me for possible further interviews

☐ Yes

☐ No

My contact information:

Appendix 2: Interview outlines

THEME INTERVIEW FOR TEACHERS:

1. BACKGROUND
Which immigrant groups have you taught and which subjects?

2. AIM / TARGET/ CHANGE
Why do you want to participate in this change laboratory project?
What kind of personal aims do you have when you participate in this project?
What would you like to get from this project?
Why there should or shouldn't be any immigrant education?
What is the aim of immigrant education?
Is separate education for immigrants necessary? Why / why not?

3. CURRENT STATE / TROUBLES
What are the key issues that bring about challenges (troubles, problems, conflicts) in immigrant teaching?
Have you come up with any ideas (e.g., based on the 1st session) as regards:

- workplace issues (shared understanding, student's role, expectations, assessment)
- functioning of school schedule (overlaps in instruction)
- teachers' attitudes (What makes them confused?)
- the relationship between language learning and learning of vocational subjects
- daily practical work in contrast with the College management
- various cultural differences

4. OUTLINING DIFFERENT GROUPS OF IMMIGRANTS
Have you noticed whether the questions and needs of immigrated students differ from those of the students born in Finland with an immigrant background? How?

5. HISTORY / CHANGE
Have you ever before participated in change/development projects?
What, in your opinion, have been the positive and negative aspects of these projects (What has changed)?
For health care teachers: In your opinion, what effect has the curriculum reform had and what changes will it bring along?
For vocational start-up teachers: In your opinion, to what social issues does this training respond?
In your opinion, what could be the objective of immigrant education from the school's point of view?
What could be an important objective for the community?

DEVELOPMENTAL NEEDS (IDEAS BASED ON THE 1ST SESSION)

1. How would you improve the co-operation between school and the workplace?
2. How would you improve the period of student's workplace learning / training for workplace learning?

TEACHERS AT WORK, THEME INTERVIEW:

1. BACKGROUND
Tell about your work history: Where have you been working and for how long?
Have you previously met students or colleagues with an immigrant background at your work?
What immigrant groups have you taught and which subjects?

2. CURRENT STATE / TROUBLES
What are the key issues that bring about challenges (troubles, problems, conflicts) in a multicultural work community? Troubles in the following domains, for instance:

- workplace issues (shared understanding, student's role, expectations, assessment, attitudes to an employee/ student with an immigrant background)
- the relationship between language learning and learning of vocational subjects school community
- culture

What is expected from an employee/student with an immigrant background at the workplace?
What kind of attitudes are held at the workplace to an employee/student with an immigrant background?
What is good / bad or what advantages/disadvantages are there in a multicultural work community?

3. OUTLINING DIFFERENT GROUPS OF IMMIGRANTS
Have you noticed whether the questions and needs of immigrated students/employees differ from those of the students/employees born in Finland with an immigrant background? How?

4. HISTORY / CHANGE
Have you ever before participated in change/development projects?
What, in your opinion, have been the positive and negative aspects of these projects (What has changed)?
For health care teachers: In your opinion, what effect has the curriculum reform had and what changes will it bring along?
For vocational start-up teachers: In your opinion, to what social issues does this training respond?
In your opinion, what could be the objective of immigrant education from the school's point of view?
What could be an important objective for the community?

5. DEVELOPMENTAL NEEDS
How would you improve the co-operation between school and the workplace?
How would you improve the period of student's workplace learning / training for workplace learning?
Should immigrant education be changed in some way so that it would respond better to the needs and expectations of the labor market? How?
What things should be considered in the multicultural world of work / in a multicultural work community?
What would be an ideal situation? What should we strive for? What should be developed?

THEME INTERVIEW FOR STUDENTS:

1. FAMILY AND LEARNING HISTORY
Which qualification are you studying for and when did you start studying at the College?
(Have you attended immigrant training or vocational start-up courses?)
At what age did you come to Finland?
Did you come to Finland alone or with your family?
Do you live alone or with your family?
Have you / How many years have you studied in the Finnish comprehensive school or in the Finnish school system?
What schools have you attended in the past?
Did you have any friends at school? What was people's attitude to you?
Did you have Finnish or multicultural friends? Or both?
Were you ever bullied?
Have you now got into the circles of other students?

2. STUDYING AT THE COLLEGE
2a. More advanced students:
What do you find as pleasant as regards studying at the College, and what is not pleasant?
What has been difficult at the College? What is most difficult in studying? Why?
What is a good teacher like? What is good teaching like?

Do you know what a personal study plan, HOPS, is?
Do you have a HOPS made for you?
Do teachers take students' life circumstances into account?
Have you come across with any troubles or surprises at the College?
Have you come across with any troubles or surprises in your studies?
What has been done to resolve them?

2b. New students:
What have you found as new/surprising at the College?
What have you found as difficult at the College? Why?
What do you like the most at school?
What is a good teacher like? What is good teaching like?
Do you know what a personal study plan, HOPS, is?
Do you have a HOPS made for you?

3. CULTURE
2a. More advanced students:
Do teachers at the College take into account that students come from various cultures? How?
In your opinion, how should studying/studies be changed so that they would better respond to the needs of students coming from different cultures?
In your opinion, what should teachers do better?
Do you feel that by your studies you are acquiring sufficient skills and knowledge for your future work?

Appendix 3. Evaluation themes about the change laboratory in February 2011

1. What do you think about the change laboratory working and what was it about?
2. What kinds of expectations did you have about the laboratory and how did they fulfill?
3. How would you evaluate the benefits/obstacles of the change laboratory work for your own work as well for the College?
4. What kinds of issues were lacking or were not given enough time?
5. How would you evaluate your own learning process and what you have learned during the change laboratory process?
6. How would you change the laboratory if we conducted it now?
7. What do you think about the MM-room on Fronter, should it be continued, if so, how, and what are the obstacles and benefits of it?

WORKING PAPERS
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WHAT KINDS OF CHALLENGES do teachers and colleges of vocational education and training face in teaching students with linguistically and culturally diverse backgrounds? What kinds of perspectives and solutions did teachers in a College find when they gathered together and discussed about intercultural teaching and learning?

This report describes a development process, during which a new model for intercultural vocational education and training was produced. The model is called a strand model and it illustrates how in vocational education and training different strands, such as individual subjects, demands of working life and learning a new language, are intertwined into a strong fabric to support the growth and development of vocational and professional competence. The strand model emphasises the cultural practices of occupations rather than individual subjects, goals, or competences.

The project was part of a larger research scheme called OPCE (Opening Pathways to Competence and Employment for Immigrants) funded by the Academy of Finland in 2009–2013. The publication is intended for teachers of immigrant students as well as for everybody interested in immigrant training. It provides new knowledge on intercultural vocational training and its challenges, presenting also a method for responding to these challenges.