

# Modeling resilient and adaptable work-integrated learning practice: The importance of learning dispositions in initial teacher education

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Global industry requires resilience and adaptability to match the new fluid necessities of 21<sup>st</sup> Century reality. Learning as a finite suite of knowledge and skills at university to prepare for a static career is now anathema, with industry demanding constant new insight and innovation to meet the needs of an ever-changing global society. In the case of initial teacher education, however, programs that purposefully develop these capabilities are not prevalent, with knowledge and skills sets too often being presented as script and thus reinforcing static thinking and teaching practices. This paper explores qualitative data collected across a network of globally focused secondary schools in Denmark and presents a positive approach for cooperative work-integrated education (CWIE) educators and institutions in initial teacher education that is based on the explicit modeling of learning dispositions. Importantly, the approach can also be seen as being the basis for any practice across professional fields where resilience and adaptability are essential.

Keywords: Work-integrated learning, initial teacher education, tertiary education, 21<sup>st</sup> Century learning, learning design, global education

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The purpose of this paper is to understand how practicing teachers understand and characterize themselves as teachers and as learners with the aim of better understanding the essential elements of effective cooperative work-integrated education (CWIE) programs in initial teacher education. How teachers view themselves as teachers define the purpose and practices that they employ in their classrooms and therefore what they model as supervisors (mentor teachers) to preservice teachers. The practices, purpose, attitudes and values that they model during the practicum are critical to its effectiveness as a learning experience and they serve to surface emergent needs that relate to work-integrated learning in education as well as other fields. Conclusions can then be made on the current quality of CWIE experience in initial teacher education and recommendations be made on critical understandings and practices that relate to the broader CWIE field.

Much of the recent literature on initial teacher education highlights the importance of the construction of a professional teacher identity through identity-in-discourse and identity-in-practice (see, for example Varghese, Morgan, Johnston & Johnson 2005). The importance of developing the self as a teacher has become central to the development of a pre-service teacher's professional identity (Chong, Ling & Chuan, 2011; Danielewicz, 2001; Watson, 2006), and has major CWIE implications for teacher educators and pre-service teacher practicum design (Trent, 2012).

What is apparent in this literature, however, is that the process of constructing preservice teachers' identities as learners within the context of pre-service teacher education is widely assumed rather than being treated as a discrete area of a teacher's identity to be explicitly developed during initial teacher education. This represents an important area for investigation as the extent to which teachers and pre-service teachers are able to use pedagogical knowledge and effectively develop their self as teacher in

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the classroom depends on the extent to which they have internalized learning as a set of values and dispositions; that is, the extent to which they developed a learning identity of their own. As this study draws a strong connection between effective teaching and teachers' conscious learning identity, positive learning attitudes and dispositions (Deakin Crick, Goldspink, & Foster, 2013), therefore, are treated as being integral to effective CWIE practice.

For CWIE, the value of the learning experience largely rests with the supervisor (mentor teacher in initial teacher education). As such, the mentor teacher's own modelled practice becomes a powerful explicit learning tool for the preservice teacher. Research indicates that mentees view the roles of the mentor also as being mainly those of providing support and explicit instruction and training in the job or skill. For their part, mentors largely consider their role as providing an explicit representation of the job or skill that the mentee is learning through, amongst other actions, role modelling, observing the mentee in action and working alongside them (Ambrosetti & Dekkers, 2010). Explicit instruction in education is recognized as having a positive effect size (Hattie, 2009) with regard to school students but also for preservice teachers. Importantly for CWIE, however, is that research suggests that action is needed to sustainably develop supervisors as positive role models or providers of quality explicit instruction for practicum students wishing to enter the profession (Richardson, et al., 2009).

Carrying out tasks explicitly for the preservice teacher to observe, consciously demonstrating positive behaviors of the profession, and demonstrating tasks and practices explicitly are essential elements of modelling in the initial teacher education context (Maynard, 2000; Kilcullen, 2007). These are vital to the effectiveness of work-integrated learning in initial teacher education and are present to ensure that preservice teachers are not left to construct this information for themselves. Critical aspects such as advanced meta-cognition and values that align with a learning identity directly support self-efficacy and self-regulated learning. These factors are identified as being significant in achieving quality learning and achievement (Hattie, 2009). The mentor teacher, or teacher primarily responsible for the development of the preservice teacher during the practicum, decides on learning intentions and success criteria and makes them transparent to the preservice teacher. Of critical importance is that the mentor teacher not only identifies them but also demonstrates them by modelling. Consciously or not, teachers are explicitly modeling teaching practices and attitudes and values as the practice that the mentee witnesses during their practicum is what is assumed to be consciously modelled.

Research, including Pelgrum, Plomp, and Law (2007) and, CISCO, Intel, & Microsoft (2008), suggests, however, that current teaching practices – either in traditional classrooms or in CWIE programs - have not kept pace with the needs of the 21<sup>st</sup> Century global society. According to the research, teachers' teaching worldviews across multiple contexts, globally, were found to be too often formulaic or script-based and that their classroom practice was not consistent with developing students' learning identity. Teachers in the Telling Identities research (Deakin Crick, Goldspink, & Foster, 2013) were found to have demonstrated mostly undesirable practices such as teacher self-referencing, being control orientated, not being able to build on learners' understandings nor communicate in multiple modes. This aligns with a study of teachers in 23 countries in North America, Europe, Asia, Latin America, and Africa, which found that the three most common pedagogical practices were having students fill out worksheets, work at the same pace and sequence, and answer tests (Pelgrum et al., 2007). Preservice teachers undertaking practicum with such teachers would receive a powerfully negative influence on their future practice and contribute to a shallow understanding of teacher competence rather than of a holistic teacher meta-competence.

## COOPERATIVE AND WORK-INTEGRATED EDUCATION AS A 21<sup>st</sup> CENTURY META-COMPETENCE

A significant 21<sup>st</sup> Century global challenge is to reconcile the seemingly contradictory forces that are occurring between societal / vocational need and educational direction (Zhao, Y, 2009, Hargreaves & Shirley, 2008). Fitting with the holistic nature of the 21<sup>st</sup> Century challenges, a holistic conception of how a person should 'operate' is important. To this end, an understanding of the notion of competency through this lens is useful as it enables global teaching and learning to be characterized as being more than merely a vehicle for students to acquire particular knowledge and skills but one that is critical in creating social and economic equity through life-long learning. Competencies, as the OECD suggest, involve the ability to meet complex demands by drawing on and mobilizing psychological resources (including skills and attributes) across different contexts, which is important when considering effective CWIE design (OECD, 2002). To meet the challenges of an increasingly fluid 21<sup>st</sup> Century paradigm, it is the ability of the teacher and student to meta-learn across different contexts and using different skills, knowledge, and values that will arm them with the capacity to develop and contribute to multiple knowledge communities, which is of primary importance in the 21<sup>st</sup> Century context.

Competences are the interface between the holistic conception of the person and the demands of the professional world, which is of critical importance to students developing attitudes, skills, and dispositions that will enable them to succeed in the 21<sup>st</sup> Century context (Deakin Crick 2007). Critical to the achievement of student competences is the facilitation of teachers' own movement between the reflection on themselves as people and as learners and as developers of discrete skill sets, knowledge, understandings; this constitutes their professional role or their meta-competence. CWIE as a structural facilitator of this movement is important not only in initial teacher education but across all industry areas.

The workplace has rightly been identified as providing a rich and rewarding source of learning for students (Richardson, et al., 2009). The provision of rich critically reflective dialogue as a medium for ongoing and developmental feedback is viewed as being an integral part of effective workplace learning or work-integrated learning. However, the educational value of facilitating this dialogue with students by workplace supervisors on the full range of competencies used in the professional setting has not been identified nor created at scale.

To that end, Engeström's activity theory is a useful model to both develop and explicate the complex nature of learning in CWIE, (Eames & Cates, 2011). Activity theory, an evolution of the work of Vygotsky (Roth & Lee, 2007), promotes purposeful and visible learning and practice for all active participants as an outcome of the dynamic interplay (Jacobs & Usher, 2018; Weber, 2003). Effective CWIE practice should involve contribution from all stakeholders as the multiple perspectives concept of development can lead to strengthening and support the quality of programs/organizations (Khampirat & McRae, 2016). That is, the effectiveness of a CWIE program depends on the complex relationships between the characteristics of institution, employer supervisor, student, organizational and national environments.

Critically, however, the extent to which the collaborative development is possible depends on the extent to which the organization provides the space and the supervising teacher is able to purposefully engage in the complex learning relationship that is required. Without a commitment from the workplace supervisor to model not only skills and knowledge but also the learning dispositions such as collaboration, critical curiosity, strategic awareness and meaning making, the learning experience for

the student is static and instead models dependency in practice; and the potential value for each stakeholder development is thus lost. The Glocal Educators Project (GEP) provides an example of the type of Scholarship of Teaching and Learning (SoTL) (Schön, 1983) partnership that supports the development of a learning mindset for the practicum supervisor as a means of developing higher order competences of the preservice teacher and thus developing agency across the institution.

#### GLOCAL EDUCATORS PROJECT

The evidence that forms the basis for this paper is drawn from teachers at 6 high schools in Denmark who participated in the GEP. The GEP was a participatory action research project, which facilitated research into and development of scholarship of teaching and learning from within the context of global citizenship education. The basis of the research was to address the apparent disjuncture between current professional learning practice for teachers and teacher educators and the form of practice that is necessary to produce purposeful and visible 21<sup>st</sup> Century learning in school classrooms as a model for preservice teachers. It explored the nature and implications of the 21<sup>st</sup> Century global education paradigm for both teachers and schools and constructed a networked improvement community of practice across six high schools in Denmark.

While the research was located primarily in teaching and learning for global citizenship, the teacher narratives about their professional purpose and practice surfaced factors that have critical implications for initial teacher education and for CWIE. The teachers who participated in the GEP felt that their own practicum, while being a fulfilling experience, was not strong enough to sustain their sense of agency after their studies had finished. They felt that it was impossible to resist a prevailing routine or script-based professional culture and practice that was at odds with the intent of the initial teacher education design.

The GEP explored the link between the meta-competence of the teacher to create desirable outcomes and the professional learning that is required for themselves to become 21<sup>st</sup> Century global citizens and global teachers. The 'becoming' phase, then, is the CWIE phase that scaffolds pre-service teachers to experience, explore and develop a 21<sup>st</sup> Century learning meta-competence such that it becomes an identity. The 'developing others' phase scaffolds teacher collaboration for the purpose of developing learning, curricula and structures that will directly support student learning. On the basis of the GEP data, the developing others phase is best done in a learning partnership with a university.

The process of constructing teachers' purpose and identity in the context of teacher professional learning and pre-service teacher education appears not to have been successful in creating the necessary resilience for teachers – beginning and experienced - to be able to work within or change the prevailing culture at the schools in which they were working; this is seen to be at odds with the increasingly fluid 21<sup>st</sup> Century education demands (Varghese, Morgan, Johnston, & Johnson 2005). This is an important challenge for schools and universities, as the extent to which teachers are able to use pedagogical cognitive knowledge and effectively develop themselves as teacher learner / teacher citizen in the classroom and in their school community, depends on the extent to which they have been supported to internalize affective learning as a set of values and dispositions. That is, the extent to which they developed a learning identity of their own (Usher & Sandvad, 2014). What the research emphasizes then, is the imperative of teachers - beginning and experienced - being supported in collaboration with the university to develop a stronger sense of learning agency; this being critical to modelling the type of positive community learning leadership that is desired. The CWIE context provides an authentic and sustainable context for this collaboration.

*Setting*

The six participating schools were located across Denmark and represented very different ethnic populations and mixes. Three of the schools were located in urban centers, two in Copenhagen, and one located in Aarhus, the second major city in Denmark. Of these schools, the Capital High School was located in the outer Copenhagen suburbs and consisted of a majority migrant population. Vestermager Gymnasium was a new school, built in a new city development and was purpose-built architecturally and pedagogically to encourage collaborative learning. The third school, located in Aarhus, was a dual curriculum school with a large vocational emphasis. One of the schools, Silkeborg Gymnasium was an International Baccalaureate (IB) school, located in a predominantly industrial area in the south of Jutland. Two schools, Odense Gymnasium and Lundborg Gymnasium, were rurally located with student populations of lengthy Danish descent and both reported on the challenge of raising student aspirations, seeing the need for a global focus.

*Participants*

The participants of the project, summarized in Table 1, all self-selected on the basis of their interest in the project and their positive experience in the focus groups. The schools, though self-selecting, did collectively represent a range of types and locations, which added rigor to the outcomes. In total, 19 teachers took part in the project across six secondary schools that were located across Denmark. At each school, a single class was selected to work in the project with the teachers. Each class consisted of approximately 27 students and each was chosen on the basis of their pre-existing focus on global issues and practices. The schools and teachers became part of the GEP created for this study.

TABLE 1: Glocal Educator Project (GEP) participant details

School	Name	Teaching Method Area	Years Experience	Role
Capital High School	Cecile	Danish	5-10	Teacher
Odense Gymnasium	Amanda	Humanities, English	10-20	Teacher (fmr D/Prin)
Silkeborg Gymnasium	Carl	English	5-10	Teacher and Global Coordinator
Silkeborg Gymnasium	Yytte	Mathematics, Danish	1-5	Teacher
Silkeborg Gymnasium	Lasse	Humanities	1-5	Teacher
Lundborg Gymnasium	Mikkel	English	10-20	Teacher and Global Coordinator
Lundborg Gymnasium	Majken	Mathematics, Danish	5-10	Teacher
University High School	Mathilde	Humanities, English	5-10	Teacher
Vestamager High School	Mona	Design	10-20	Teacher and Global Coordinator

The research elicited the purposes, perspectives and practices of teachers that related to global citizenship competences and considered professional learning implications. In the broader global or national community, in the classroom community, or in industry, it is the sense of mindful agency of the individuals and groups that is the key to collaborative learning and adaptive effective action. Incumbent, then on the educational institution, school or university, is to recognize its normative social and cognitive patterns and identity and take deliberate steps to developing them as being sustainable and inclusive. To achieve this, it is critical for each member of the learning community to have access to an affective or learning language with which to communicate, in addition to the cognitive language of the curriculum. Central to effective cooperative and work-integrated education are those social practices, which enable a competent citizen, teacher, pre-service teacher or student to participate fully in the community culture.

An active learning language with which to communicate and develop these norms is critical to both create deep learning communities and, importantly, to sustain them. The Effective Lifelong Learning Inventory (ELLI) (Deakin Crick, Broadfoot, & Claxton, 2004) is a learning analytic tool that was employed as a reliable method for making visible a person's learning attitudes and dispositions. The GEP embedded the ELLI dimensions in activities and learning that guided teachers to self-reflect through seven dispositional lenses: critical curiosity; creativity; learning relationships; hope and optimism; strategic awareness; resilience; and meaning making. The teachers' reflections with the ELLI dimensions enabled them to act with clearer purpose and to be able to communicate and collaborate on their purpose and practice. These are essential competences for teachers to develop and model in school communities and for universities to develop and sustain through initial teacher education and CWIE.

#### *Data and Methods*

The GEP facilitated a systematic exploration of teachers' interpretations and constructs relating to perspectives of globalization, citizenship, lifelong learning, and the scholarship of teaching and learning in their teaching practice. The first phase of the study consisted of eliciting the teachers' pre-understanding of the 21<sup>st</sup> Century global education paradigm through an online questionnaire; a focus group; and a workshop that was anchored in the emergent themes to illuminate future practice. The workshop introduced and was presented through the lens of the ELLI dimensions. Phases two and three of the project, elicited data from classroom observations, professional learning workshops and individual and group semi-structured interviews. Each of the participating teachers were interviewed about their teaching identity and practice three times, individually and three times as a part of a group. The researcher visited each school for three individual days from May 2014 to December 2015. In total, there were 57 semi-structured individual interviews and 18 group interviews with teachers.

The interviews were open-ended, inviting stories of teaching and learning experiences, as well as stories that characterized their ideas and experiences of global citizenship and global teaching practice. The interviews were focused on drawing on the themes the researcher and the participants had identified for analysis during the first stage of the project. Importantly, they enabled new ideas to be introduced by participants, which were incorporated into the themes, iteratively. The interviews, held in dedicated rooms across the six participating schools, were digitally recorded and transcribed by the researcher. They were then coded and aligned to the relevant ELLI dimension to ensure dependability, credibility, transferability and confirmability of the qualitative data (Guba, 1981; Schwandt, Lincoln & Guba, 2007). First, themes that emerged from the initial data, which had not been previously

recognized, were identified and coded; second, the data was interrogated for the presence of relevant secondary themes, already identified.

#### *Data Analysis*

Data analysis was directed at identifying and describing key attitudes to practice and issues and concerns of teachers. The analysis focused on the correlation between the teachers' stated ideal purposes and their reflection on and explanation of their real practice. An induction method of analysis was employed, with the researcher immersing themselves in the details and specifics of the data to discover emergent themes. Themes from the interviews and observations were coded and transcripts and field notes tagged. The analysis was conducted iteratively across the phases of the project, with each analysis serving to inform the activity phases.

#### FINDINGS

Two important messages emerged from the data with regard to CWIE. First was the imperative of teachers and teacher educators moving from a cognitive competence understanding of their practice to a meta-competence understanding. Second, and stemming directly from the first, were the implications for initial teacher education; the need to develop teachers as meta-competent practitioners and, most importantly, as models of this practice for pre-service and beginning teachers. This was a CWIE need in initial teacher education and across other fields for Herrington and Herrington, as they highlighted how "it has become increasingly clear that university learning outcomes are lacking and no longer meet the needs of a dynamic and changing workforce" (2006, p.2.). This was reflected in the GEP data. It revealed that while initial teacher education and CWIE models were seen to have been of value, they did not support the sustained development of the type of mindful agency required for teachers to continually adapt, develop and contribute to their professional communities.

#### *Teacher Understanding of their Ideal Purpose versus their Practice Reality*

What became apparent from the data was that there existed an ideal versus reality dichotomy. It was identified both when the teachers reflected on themselves as learners and it was also strong when teachers reflected on their professional purpose as teachers. Interestingly, the ideal purpose was not mythical but rather was often based very clearly on real experience. Teachers identified a strong and positive link between their pedagogicum (integrated teacher training in which teacher candidates undertake teaching duties at a school, while also undertaking theory-based units at university) and their ideal purpose as teachers. There was a warm reflection about both purpose and practice during their pedagogicum but one that had since been eclipsed by the realities and routines of teacher practice. The factors that differentiated real purpose and the ideal purpose can be explained as a reflexive learning purpose, felt to have been extinguished by a grinding reality of school practice.

The following exchange with teachers at Silkeborg Gymnasium (pseudonyms used in all data) highlights the real versus ideal dichotomy and also an indication that had they been better prepared for meta-competent practice, they might have been better prepared to operate differently within the contemporary reality.

[Interviewer] Teachers' reflective data suggests that teachers don't strongly identify with the ELLI learning dimensions of critical curiosity, strategic awareness and resilience. Does that sound right for you?

[Carl] Yes, it's the ideal and the reality. In our pedagogicum we would spend time investigating the theory and practice all the time, so I think if we had these [ELLI] learning dimensions some years ago, it might be quite other answers.

[Interviewer] What happened?

[Carl] Routine. And also a lack of time.

[Jytte] Since I finished my pedagogicum, I don't think I have reflected on my own learning process at all. I am sorry to say. We've not experienced learning dimensions like the ELLI ones before. I reflect on how my students will learn and how I can help them learn but not on myself as learner. It's different as a teacher now.

[Mathilde] It's a matter of priorities, I don't think about how I work with pedagogies like I did during my pedagogicum, I just work and have a good relationship with my students. It's a choice. I can see better now how it might have been different with the learning areas that you have brought to us.

Resilience was one of the ELLI dimensions that teachers did not strongly identify with. Teachers reflected that this was not the case in their pedagogicum, rather, it was the nature of the routine professional practice that had acted to diminish it:

[Interviewer] You identified least with resilience in your ELLI profile, how does that reflect you as a teacher?

[Lasse] Yes, no but if you asked my two years ago when I was doing my pedagogicum resilience was something that I identified with. I had time to focus and stick to a task and I was also able to design my own task, you know. But right now I can't – I have to find a quick answer that works. I'm not a learner, I'm a survivor. That's a problem. Each time there is a lack of creativity, even though I'm a music teacher I'm not creative because of a lack of time.

[Majken] It's difficult because we are so focused on teaching but not on learning.

[Mikkel] The need for changing and attending so many meetings take away from our ability to reflect on ourselves and our students. There is a focus on results all the time or things that you can mark or tick a box. It's a mindset of a teacher that puts us in this role. Many of us came from uni with idealism and with things that didn't fit with working lives and we had to adapt. We were probably better learners at uni.

[Lasse] It says that teachers need to go beyond the immediate curriculum to be a glocal teacher. I agree. But the hard part is how to do that.

The teacher's reflections on their own pedagogicums reflected valuable learning experiences; the type of reflective and collaborative experience where learning through teaching was a conscious reality. The collaboration represented a real connection between the theory that they engaged with at university and the practice that they engaged with while actually teaching in the school. The teachers' references to their own pedagogicum were idyllic in nature, portrayed as being a golden age in their career. Their reflections, however, also revealed a sadness at the way that the contemporary reality of their professional practice made this age impossible to recreate. For CWIE, this suggests that, though of

great value initially, the development of a pre-service teacher's meta-competence in the current model is not strong enough to sustain them far into their teaching career.

*Teacher Identification of Factors that Limit their 'Ideal' Practice*

Following an initial ELLI workshop as a part of the GEP, teachers were asked to reflect on the ELLI dimensions and place themselves within the context of those dimensions, individually, as teacher groups, with students individually, at class levels, as school groups and as a whole project cohort. The teachers saw the ELLI dimensions as being a very useful 'learning language' with which to support reflective practice and deep discussions about their practice and the purpose of their practice.

The reflections against the ELLI dimensions revealed that despite feeling ready, in their pedagogicum, to embark on their emergent meta-competent practice into the profession, teachers found that factors such as routines, lack of time, and tight and crowded curricula, undermined their foundation learning and teaching purpose. What was absent was the sense of agency necessary to address the identified shortcomings of their reality. A sense of agency, or a confidence and ability to act even in situations of uncertainty, such is increasingly the case in the 21<sup>st</sup> Century education paradigm, is often found in stronger identification with resilience, strategic awareness and critical curiosity. The teachers' reflections on the ELLI dimension clearly reflected this.

*Resilience and the Sense of Agency*

Resilience was identified as being an important dimension as were learning relationships and strategic awareness. These are strong drivers of a sense of agency and enablers of the type of epistemic teaching identity that is consistent with the fluid nature of 21<sup>st</sup> Century reality. However, there was a general feeling amongst the teachers that they did not identify strongly with these dimensions, largely because of rigid systems and structures at both the school and system level. This feeling aligns with research (Deakin Crick, Goldspink, & Foster, 2013) which identifies teaching and learning mindsets as having two poles: either external, based on learning and teaching as script or internal, based on learning and teaching as design. The notion of agency, as a key part of resilience, was seen to have been negatively impacted by the realities of school routines and structures.

In terms of resilience, Mona, at Vestamager High School indicated that she and teachers generally were not given the opportunity to articulate their own priorities. She said,

in a working context, in many cases what actually happens right now is that we are told 'we would like you to work more now in teams and in a particular way'. To be resilient is to say, ok, I will find a way to cope with that. It actually happens very often that somebody tells us what is important. What that shows maybe is that we are not resilient.

Similarly, Amanda at Odense Gymnasium felt that there was a critical gap between the school or system goals and teachers' own goals, which negatively affects resilience. She said

Our reflections show that teachers need to know where we are heading, what is the real reason, where are we going and why are we doing this. They are willing to change and learn and to make meaning but why is not clear to the great amount of teachers, I don't think.

Jytte at Silkeborg Gymnasium also saw the connection between internal and external purpose. She said “So for resilience teachers should be less controlled so they feel more responsible. It’s similar to our students if they think it’s important, they will probably do it. I think my subject is important, so I will do it”.

### *Strategic Awareness*

The second dimension most strongly referred to by teachers, when reflecting on teaching and learning for 21<sup>st</sup> Century outcomes, was strategic awareness. Teachers saw two elements in this dimension equating the notion of ‘strategic’ with being organized or planned; and understanding strategic as closely related to being networked. Both are important to the ELLI authors’ understanding but neither capture the learning element of the dimension. Deakin Crick et al., (2004) defined strategic awareness as being confident and comfortable in the liminal zone, or state of uncertainty, and able to chart a course forward, without being sure of the outcome. The charting of the course aligns clearly with the notion of organization and network planning but is more than just these two elements. It involves being comfortable enough to design pathways forward on the basis of emergent and sometimes challenging hurdles. A strategically aware teacher or student is able to navigate their way forward in their learning even when there is no clear pathway. Such a teacher or student has agency and is not dependent on external people or systems to provide the pathway.

In the teachers’ eyes, being strategically aware meant following a set curriculum or plans that had been provided for them. Jytte commented, “strategic awareness, I’m surprised we don’t seem to fit with the official definition because we have a purpose, we know what we’re supposed to do.” While acting strategically as a teacher certainly involved careful planning to ensure outcomes are met, the major element of strategic awareness focuses on a person’s known strategies for learning and understanding. Equally, as indicated, the ELLI domain of strategic awareness can be discussed in terms of how comfortable a person is when they find themselves in the zone of uncertainty; their comfort in this understanding would depend not on their preparedness to follow a set curriculum or to make strategic connections, necessarily, but rather to be comfortable and confident that they can navigate the unknown. That is, a teacher can be organized and networked but without being comfortable with their ability to strategize in situations of doubt.

As a teacher, not controlling the learning finish line or ultimate destination can be challenging. Mainstream practice is largely centered on system driven curricula and learning objectives, which allows teachers to drive the learning. This practice leaves little room for emergent learning or for following authentic enquiry leads. Importantly, though, it allows teachers to plan ahead for their learning by being strategic. Mathilde explained that “You go to different workshops to get wise. I work very well with connections ... if I need to know something about Egyptian architecture I find somebody”. Mathilde’s example highlights a purposeful practice and a strategic approach. However, it is clear that, through this approach, she intends to eliminate or at least minimize the instances of the unknown so as to be able to control the outcome. The archetypal strategically-aware teacher in this situation would be comfortable or even relish the opportunity to explore new enquiry avenues in real time or at the same time as the students, being comfortable that they have the learning power to be able to derive meaning and support the learning direction as the enquiry goes, whichever direction it goes.

Cecile from Odense Gymnasium identified the necessity for teachers in Denmark to adapt to the significant systemic changes in terms of strategic awareness. She said:

one explanation is that there are huge changes in our field right now and that makes of course changing and learning strong because that is the basic part of teaching but the strategic awareness is quite different because it is about how you will do it and that is different because that is the law and the changes that we are facing.

In this case, Cecile described the need for her and all teachers to be comfortable in constantly adapting to systemic change; to be an agile learner and practitioner.

### *Critical Curiosity*

Teachers felt that they did not have a strong identification with critical curiosity, at least not in practice. Teachers saw a correlation between their comparatively weak identification with this dimension and the realities of their busy lives, in both a broad sense and in their teaching practice. In what emerged as a clear pattern, teachers felt that school-level factors, such as time constraints and rigid curricula, negatively affected their scope to be critically curious in their roles.

The following exchange with Carl, at Silkeborg Gymnasium, highlights a feeling that the school systems in place did not support some teachers' ideal practice:

[Carl] Low critical curiosity is like life, for instance, I can see that some of the elements of critical curiosity I reflected on knowing that I have small kids and if I need to do a task, I need to do it quickly and that's it. My need to find things out and go deeper is not there right now.

[Interviewer] how do you find out about students learning if you are not critically curious?

[Carl] yeah, I can see the discrepancy. We have to teach our students knowledge and maybe critical curiosity is the opposite in some ways. I think that high school teachers are not critically curious but very critical. If we have to learn something from others, we have a very high level of criticism because we teach everyday and then if somebody from outside is going to tell us about something we are very critical. It's very funny. We are in general not as open to receive knowledge from others as we know a lot and we have this immediate opponent and I don't know why because we can learn a lot with others. I guess it's about the relationship.

The importance of the GEP experience was the internal collaborative learning relationship that was created; rather than external experts imposing knowledge and practices on teachers. Instead what was created in the GEP was a shared enquiry space and purpose directed towards an area of authentic need an interdependent learning relationship was developed that resembles the emergent 21<sup>st</sup> Century need. The teachers' engagement in the enquiry across the life of the project and the emergent understandings arrived at is evidence of this.

### CONCLUSION

Schön (1983) rightly highlights the value of scholarly reflection in terms of professional practice and organizational success. Through CWIE facilitated reflection, a professional organization can surface and challenge tacit negative understandings that have grown up and around the repetitive experiences of a specialized practice and can make new sense of the situations of uncertainty. A significant message from the GEP was that there is a strong case for the university involvement in adding value to the

workplace in an ongoing learning partnership. It highlighted the difficulty for teachers to effectively reflect-in-action individually and collectively and the need for schools and universities to facilitate this more purposefully.

The notion that the CWIE partnerships are a genuine vehicle for schools and indeed any workplaces to become learning organizations is of fundamental importance to the success and sustainability of effective CWIE models. In a partnership with a university, effective problem setting is scaffolded by research-based dialogic reflection-in-action with external personnel. That is, the action extends thinking and the reflection feeds on the action and the results. Each feeds the other and each sets boundaries for each other. In the case of the GEP, working in partnership with the university researcher surfaced critical needs that were not being met and supported new practices to address them. The partnership was seen to have increased the awareness of the teachers and their competence in the areas of critical curiosity, strategic awareness and their resilience and sense of agency. The scholarship of teaching and learning may best be thought of not as discrete projects and investigations, but as a set of principles and practices that bring people together and energize their collective work: a commitment to making teaching and learning public, to rigorous and constructive peer review and to building the field (Hutchings, 2002). The critical value of CWIE, then, across all vocational fields is its potential to sustainably and rigorously develop new knowledge and understandings of the industry through partnership.

The emergent need, then, is a CWIE model that creates genuine and sustained learning partnership between the university and the workplace so that participants, student, academic, workplace supervisor(s), are supported to model resilient learning practices as well as contemporary cognitive skills and knowledges. The GEP project indicated that this does not happen automatically and if it is not addressed purposefully, the CWIE experience can foster the modelling of script-based mindsets and standardized practices that run counter to developing future-focused developmental practices. The GEP teachers as explicit teaching agents for quality 21<sup>st</sup> Century global teaching practice reinforced the old transmission paradigm through their practice rather than modelling attitudes and pedagogies consistent with 21<sup>st</sup> Century learning goals. While growth in attitudes and values and in practice was achieved over the course of the project, as evidenced through the ELLI data and through classroom observations, a longer-term school-university relationship is what is needed for sustainability and scalability across the whole school. A purposeful and sustainable CWIE framework based on a collaborative Scholarship of Teaching and Learning (SoTL) partnership would enable a continual cycle of critical reflection and practice development for both school and university personnel.

Core needs of a CWIE model focused on developing resilient learning, should involve the university lecturer to be actively involved with the workplace mentor and student(s) in researching and publishing the results of an agreed shared learning project. The university lecturer would not only engage with the learning project actively with a scholarly focus but they would also support both the workplace mentor and the student to do the same. The connection between both the university lecturer and the workplace mentor is strengthened and the connections to the learning project (collaboratively developed) are strengthened significantly. The shift is thus from being engaged in terms of supporting the learning of the preservice teacher to supporting the systematic reflection on teaching and learning with the aim of making the project public. The proposed model, then, increases the value of the partnership for all parties and forms the basis of sustainable improvement in teaching and learning for both the partnership school(s) / workplace(s) and the university.

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