

The Three Learner Roles Model and the Identification of Key Online Learning Dispositions

Sharon Rolé
University of Malta

This paper discusses key online learning dispositions which were identified in a case-study of college students learning in a blended learning context. The dispositions of resourcefulness, resilience, reciprocity and responsibility, classified as persona-related enablers, were crucial for the students to develop a deep approach to learning and form a learning community. The dispositions resulted in changes which included transformations in epistemological beliefs, study patterns, habits, learner roles and learning identities. In several cases, student learning dispositions were transferred from one context to another. As argued, learning activities should provide students with opportunities to develop and cultivate desirable dispositions for learning.

Keywords: e-learning, resilience, reciprocity, responsibility, resourcefulness, learning community, learner roles

INTRODUCTION

This paper discusses the identification and exploration of online learning dispositions of thirty-seven college students who participated in a blended learning chemistry course. The study is part of a larger research work which was an inquiry into the online learning experiences of the students (Rolé, 2014). The key dispositions of resourcefulness, resilience, reciprocity and responsibility were classified as persona-related enablers amongst several factors which were found to affect learning.

Learning dispositions are visualised as habits of mind and tendencies of students to respond to situations in a characteristic kind of way (Katz, 1988). Dweck (2006) noted that beliefs result in dispositions and these are indicated by actions. Deaken et al (2008) argued that learning dispositions reflect the learning identity of a learner, and at the same time they enhance learning and result in further learning. Several educators, being conscious of the importance of learning dispositions, provided their own lists. Examples include Claxton and Carr (2004), in childhood settings, listed resilience, playfulness and reciprocity and Bernard et al (2004), in online settings, listed a readiness to interact, to give timely feedback and to support other students.

The designed collaborative blended learning course, which supported this case-study research, provided opportunities for the development of desirable online learning dispositions in students. The four dispositional domains of resourcefulness, reciprocity, resilience and responsibility were identified and explored.

METHODOLOGY – PRACTITIONER RESEARCH

As a practitioner I designed, implemented and conducted a blended learning course with students who were accustomed to traditional face-to-face learning based on an individualistic and ritualised approach (Boaler & Greeno, 2000). The course was designed on the supplemental model where the online work complemented the learning in the face-to-face class. Most online work was based on a socio-constructive approach to learning and included the use of wikis, discussion fora, glossary and lab simulation tasks, which were accessed from the virtual learning environment (VLE) Moodle 4.1. Face-to-face learning involved lectures and discussions in the classroom. The case-study data generation methods were integrated within the course.

As a researcher, I designed and implemented a multi-method interpretivistic research inquiry to explore the students' response to the innovative learning strategy. An interpretive phenomenological approach (Smith et al, 2009) framed the study. The main study (Table 1) was carried out during 34 weeks in the academic year 2007-2008, and this was preceded by a four-month exploratory study in the previous year 2006 -2007, with a different cohort of college students.

The Case-Study Design

The full two-year study involved a multi-method interpretivist approach using observations, unsolicited meetings, VLE tracking system, students' reflective journal, online informal discussions, questionnaires, focus groups and individual interviews. Table 1 indicates the data generating methods which were used, the type of data which was generated and the period when the research method was employed.

TABLE 1
DATA GENERATING METHODS AND THE TIME FRAME FOR DATA COLLECTION

Week	Tool/ Research method	Data
1	Questionnaire 1: student profile questionnaire	Students' familiarity with technology
1-28	Unsolicited face-to-face chats with students	Students' thoughts on course activities
1-32	Researcher's journal	Observation, reflections and development of ideas.
1-32	Virtual Learning Environment tracking system	Students' access and engagement in the VLE.
1-2	Informal online fora	Students' perceptions of online learning and collaborative learning. Use of Ice-breaker activities.
5	Student's reflective journal	Reflections on some online activities.
7	Questionnaire 2: early stages questionnaire	Students' developed attitude towards course.
8	Two ad-hoc group interviews	Purposeful selection of non-participating students
16	Questionnaire 3: Middle Stages questionnaire	Functioning of groups and the students' roles
23-24	Two focus group meetings	Students' perceptions and experiences.
28-34	23 Individual interviews; 12 in-depth interviews	Students' perceptions and experiences.

Source: Rolé 2020

A zooming-in approach (Nisbet & Watt, 1984) was used to allow (1) an insight of online collaborative learning as experienced by all the students, and (2) a focus on a resilient group of twelve students.

The generated data was stored, coded, categorised several times, reduced and analysed using the qualitative analysis software Nvivo 8. The intense coding and reiterated categorisations of the data gave me a deep understanding of the students' experiences of online participation. The findings from the final

individual and in-depth interviews (Weeks 28-34) at the end of the seven-month course were treated as primary data. This data was triangulated with the other generated data (Weeks 1-24) (see Table 1).

FINDINGS AND DISCUSSION

The findings and discussion in the sections 3.1 and 3.2 provide the context to those in sections 3.3 and 3.4, which concern learning dispositions. In this work, I adopted the practice of using pseudonyms and not the students' real names.

Behaviour Patterns

Teenagers are often considered to be digitally literate (Prensky, 2001), with a desire to be connected to each other and to the Internet (Oblinger & Oblinger, 2005). The learners' profile questionnaire (see Table 1) revealed that 84% (n=31) of the class were familiar with and liked technology.

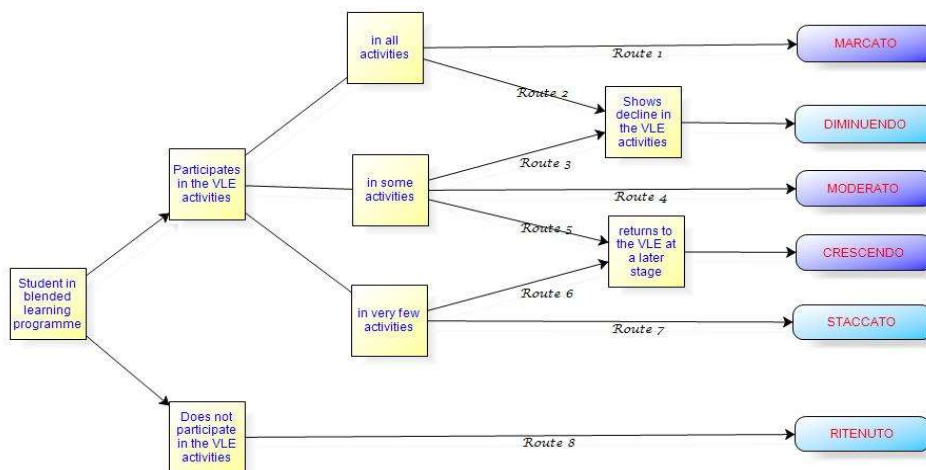
TABLE 2
BEHAVIOUR GROUPS AND THE STUDENTS IN EACH GROUP

Behaviour group	Meaning of term	Course Participation	Number of Students	%
Marcato	emphatic	Full	1	3
Moderato	moderate speed	Part	9	24
Crescendo	becomes louder	Increases	12	32
Diminuendo	becomes softer	Decreases	4	11
Staccato	detached	Episodic	7	19
Ritenuto	held back	None	4	11

Source: Rolé, 2014

Nevertheless, a diversity in online student behaviour patterns emerged. This finding is in line with evidences from researchers (e.g. Helsper & Eynon, 2009) which negate Prensky's claim regarding digital natives. The emerged patterns rendered six student behaviour groups, which for easy reference, were likened to terms selected from music dynamics (see Table 2). Table 2 also shows the number and percentage of students with a particular type of behaviour pattern.

FIGURE 1
THE ONLINE BEHAVIOUR PATTERNS



Source: Rolé, 2014

Figure 1 illustrates the online journeys of the Marcato, Moderato, Crescendo, Diminuendo, Staccato and Ritenuto students. The enthusiastic Marcato student (Route 1) participated in all activities. The twelve Crescendo students (Route 5) were the resilient students who eventually became full contributors. The Moderato students (Route 4) participated in small group work but not in whole class discussions. Data analysis revealed that 59.46% of the class (n=22) formed an active online learning community composed of the Marcato, Moderato and Crescendo students. Analysis also showed that successful online collaborative learners met the following three challenges: (1) the acceptance of online learning as a learning method, (2) the ability to use the computer, Internet and VLE tools and (3) the ability to be a self-directed learner and to contribute to online collaborative activities.

The Factors Which Influenced Online Behaviours

In this study, I extended Garland's (1993) framework of inhibitors as a model to suit my data of inhibitors and enablers. The factors were categorised in three main themes: situational, infrastructural and persona-related (see Table 3).

TABLE 3
A FRAMEWORK OF THE FACTORS AFFECTING ONLINE PARTICIPATION

Inhibitors and Enhancers		
1	Situational	Time-management, online learning/VLE issues, experiential and out-of-class opportunities
2	Infrastructural	Institutional issues and outside-college settings
3	Persona-related	Epistemological beliefs, personal states, computer use skills and learning dispositions

Source: Rolé, 2014

Situational factors were due to the personal choices (Stanford-Bowers, 2008) and unless the students themselves were prepared to change their lifestyle, they could not be able to meet the challenges. This was the case with the Diminuendo, Staccato and the Ritenuto students. In contrast, the Crescendo students, were resilient and able to overcome their situational problems.

The infrastructural factors involved institutional and home limitations to the access of computers and the Internet. Despite the fact that all the students in the class had computer and Internet access at home, some students had connectivity and use issues.

The persona-related factors included (1) the students' epistemological beliefs regarding self-directed learning and collaborative learning, (2) personal states such as shyness, (3) online reflective and writing skills and (4) learning dispositions which are the findings described in the next section 3.2.

Learning Dispositions as Enablers for Online Collaborative Learning

Learning dispositions are described by Claxton and Carr (2004) as the readiness and the willingness to learn. Katz (1988) argued that it is useless for students to be taught skills, if the disposition to use such skills is not present e.g., a student may be taught how to read, but the intense practice may make the student dislike reading. Data analysis in this study, revealed the learning dispositions of resourcefulness, resilience, reciprocity and responsibility as the dispositional pillars of online collaborative participation. The emerging data indicated that the Marcato, Crescendo and Moderato students demonstrated the dispositions of resourcefulness, reciprocity and responsibility. In addition, the Crescendo students gave evidence of the disposition of resilience. The Staccato and Ritenuto students lacked these positive dispositions and were unable to participate in the VLE. The Diminuendo students gave evidence of some of the dispositions at the beginning of the course, but lacked the disposition of resilience and failed to persist in further participation.

Disposition of Resourcefulness

The disposition of resourcefulness focuses on the cognitive aspects of learning. This disposition was indicated by (1) a curiosity about online learning and an academic curiosity, (2) a confidence in the new learning design, in the teacher and in themselves as a learner, and (3) a flexibility in the appropriate use of different resources.

Curiosity, in this case, a sub-disposition of resourcefulness is indicated by asking questions and exploration. It is the motivational process for learning, implying that students need to be curious to learn (Goleman, 1996). In the first two weeks of the blended course, twenty-seven students (80%) had self-enrolled in the VLE. In the case of the Marcato and Moderato students and later, the Crescendo students, the initial curiosity to access the VLE led to academic curiosity which was characterised by exploration, and interest to solve problems in the discussion fora and wikis. In this zone of curiosity (Day, 1982), the online participants became cognitively engaged in research and problem-solving activities.

'When I have a problem I would want to solve it Anthony and I could not agree on an issue which we were discussing online. I was not sure myself, but I was not convinced of what he was saying. It took us some days, but finally we worked it out,' Kate (Crescendo), in-depth interviews.

Curiosity was also instrumental for at least six Crescendo students who observed other students solving chemistry problems. They were able to fill the gap between what they do not know and what they must know to resolve their cognitive conflicts. The Ritenuto, Staccato and eventually the Diminuendo students were below the optimal level of curiosity and lacked the motivation to explore resources, both in terms of research and also to learn with and from peers. The online behaviour of these students was characterised by avoidance, defensiveness, and disinterest.

The sub-disposition of having confidence was apparent in resourceful students as confidence in (1) the innovative learning setting, (2) their abilities and their work, and (3) other students engaged in collaborative work. The enthusiastic Marcato student expressed a confidence in the learning design, his ability to do research, understanding chemistry, explaining to other students and assessing his own learning.

'Another way to learn. I accepted it like it was a lesson, another resource, I was looking forward to use Moodle. I see what problems other students have. I was not always able to solve problems, but I used to do some research, so that first I understand the concepts well and then I help the others; and I could tell how well I knew the topic myself,' Anthony (Marcato), individual interviews.

Resourceful students showed a mutual confidence in each other as they learnt together and from each other. This confidence was also demonstrated in the small groups:

'We checked and discussed each other's work in the wiki and put in comments until we agreed on everything,' Kelly, (Moderato) individual interviews.

The students were aware that having confidence in each other was a crucial issue in collaborative work. In the first collaborative task, some students were disappointed with the presence of non-contributors in the groups, and requested to have student self-selected groups. They argued that teaming up with class-mates that one has confidence in, would be to the group's advantage.

Flexibility, a sub-disposition of resourcefulness, is defined by Collis and Moonen (2001) as learner choice in a learning experience in terms of resources and activities. Flexibility was indicated when students learnt from alternative or additional methods of learning. Additional learning resources were either suggested by the teacher or discovered by the students themselves.

Some students were not disposed to look at alternative learning resources. The Staccato students and initially some Crescendo students, who had considered online work as unnecessary or optional were not

flexible. One Crescendo student considered using the VLE, only when he was told that the work was part of the homework. Doreen, another Crescendo student was initially in the course, reluctant to become an active learner.

'I preferred to find the explanation already there, in the notes. I read it and understand it; trying to solve problems and researching was tedious,' Doreen (Crescendo), Focus group2.

Students who did not grasp opportunities to further their learning and who relied solely on the teacher's notes were not flexible. The Staccato, the Ritenuto and the Diminuendo students resisted the use of innovative methods of learning. Students with the disposition of resourcefulness e.g., the Marcato, at times the Moderato and eventually the Crescendo students, became self-directed learners demonstrating independence, self-management, and a desire for learning. The students who lacked this disposition of resourcefulness, namely the Staccato and the Ritenuto students, did not meet the first challenge i.e., the acceptance of online learning as a learning method and hence met none of the other challenges.

Disposition of Resilience

This disposition focuses on the emotional aspects of learning. It is conceptually described by Claxton and Carr (2004) as an inclination to take on challenges when outcomes are uncertain, to persist despite temporary confusion or frustration, to recover from setbacks, and to rededicate oneself. The reluctance to use the VLE for collaborative learning was due to several factors, but the most common inhibitors were (1) epistemological beliefs favouring a teacher-reliant and an individualistic learning approach, (2) personal states of shyness and of low self-esteem in using computers and contributing to the whole-class discussions, (3) online engagement skills regarding writing and reflecting, and (4) a will to keep Internet use for leisure and not academic work. Table 4 shows how Jodie, a Crescendo student, was unable to meet the listed (numbered) challenges due to uncertainties but being resilient, the student persisted and after two months, she participated fully in the VLE activities.

TABLE 4
THE INHIBITING FACTORS AFFECTING ONE CRESCENDO STUDENT

Student	Challenge	Inhibitors/uncertainties/frustrations	Recovery/rededication and time period for change
Jodie	1	Uncertainty issues - VLE for learning	After two months, Jodie realised that she was falling behind in chemistry and that online learning would meet her learning needs.
	2	Writing chemistry and mathematical text in the VLE	
	2	Reflecting and writing using the keyboard	
	3	Lack of self-confidence – discussing and posting	
	2	Internet for leisure	
	3	Shyness	

Source: Rolé, 2020

This learning disposition enabled the Crescendo students (n=12, 32% of class) to persevere through their uncertainties and frustrations. The disposition of resilience was exhibited by the students in terms of persisting (1) as online collaborative learners and (2) in solving chemistry problems. In contrast, the Diminuendo students (n=4, 11%) who only participated in first few months clearly lacked this disposition.

Disposition of Reciprocity

A crucial disposition for online collaborative learning is doubtlessly the learning disposition of reciprocity, which focuses on the socio-constructive dimension of learning. Reciprocity in this research

context denotes an interacting relationship between learners, where an interchange of ideas in response to questioning and problem-solving activities took place in asynchronous communication in the discussion fora and in the wikis. It resulted in the creation of learner generated knowledge. This disposition was crucial for learners participating at the knowledge building level to co-construct their knowledge through participation (Gunawardena et al., 1997). Students, who lacked this disposition, were unable to cope with the third challenge which was to discuss and contribute to the generation of knowledge in the online environment. Claxton and Carr (2004) listed the following indicators: (1) to engage in joint learning tasks, (2) to express uncertainties, (3) to be questioning, (4) to take a variety of roles and (5) to take others' purposes and perspectives into account.

The learning disposition of reciprocity gave rise to learner interactions and created social, cognitive, and teaching presences (Garrison et al., 2000). As the Marcato, Moderato and Crescendo students reciprocated and became engaged in joint online learning tasks in whole-class discussions in fora and in small group work in wikis, they took on the roles of help-seekers and knowledge-mediators. The following comment illustrates how a Moderato student visualised learning in the online community.

'... (In Moodle) you always continue learning; you see everyone, it is like a process, adding to the knowledge which one already has...,' Rita (Moderato), individual interviews.

The VLE provided a medium which, allowed the students to observe each other learning. The cognitive and teaching presences were maintained by learners in the discussions in the fora and in the wikis. This was different to the face-to-face class scenario, where each student was conscious only of his learning through learner-teacher and learner-subject content interactions. In the online setting, learners could compare their understanding to that of other learners. This created an environment where learners clarified and reinforced their understanding of concepts together. Cognitive presence was created as students constructed and confirmed meaning through reflection and discourse (Kanuka & Garrison, 2004). In this process they listened to each other, developed as inquirers, explored solutions and discussed together and with the teacher.

'I do my research and be the first to put my answers in the wiki. My friends add more sections. Then we discuss and leave the good parts as an answer. There were times they did not know how to answer. I will then explain the work,' Anthony (Marcato), individual interviews.

The above comment reveals a scenario in small group-work, where the Marcato student helps other students who were in the zone of proximal development (Vygotsky, 1978). Teaching presence was also created as the online participant students facilitated discussions, taught each other and learnt from each other while they discussed and shared problems in fora and in wikis.

Social presence, defined as the ability of learners to project themselves socially and emotionally in a community of inquiry (Garrison et al., 2000) is crucial to maintain both cognitive and teaching presence (Lehman & Conceicao, 2010). The following comment illustrates how the reciprocating behaviour of the students changed the virtual space into a safe and comfortable place for meetings outside the College walls.

'Normally, one does not go around asking others, - I cannot understand this concept bla bla bla, but in the VLE, since everyone is there discussing and asking, you feel, I am not on my own, it is comforting, I can ask in here, this is what this is for,' Rita (Moderato), individual interviews.

Disposition of Responsibility

The disposition to take responsibility for learning is fundamental, and it re-enforces and is re-enforced by the presence of the dispositions of resourcefulness, resilience and reciprocity. In traditional teacher-centred learning, the students rely for their learning mainly on the sense of responsibility of the teacher. In

this course, the knowledge-mediators and help-seekers interacted together and shouldered the responsibility for their learning and that of their peers; they became self-directed and collaborative learners and also partners with the teacher in the learning process. Anderson and Prawat (1983) stated that a sense of responsibility is made visible by behaviour, and is affected by invisible components such as beliefs and attitudes. In this section, I describe the behaviours of the Marcato, Crescendo and Moderato students, and provide evidence that a sense of responsibility was needed for the building of the online learning community. The learning disposition of responsibility focusses on the moral aspect of learning and is discussed in two parts: (1) Disposition of taking the responsibility to manage one's learning and (2) Disposition of taking the responsibility for the learning of other students.

The Disposition of Taking the Responsibility to Manage One's Learning

The learning disposition of taking the responsibility to manage one's learning was indicated when students managed their own learning and became self-directed learners. Self-directed learners are able to assess their needs, secure learning resources, implement learning activities and evaluate learning (Guglielmino & Guglielmino, 2003); they take control of the learning process by employing self-regulatory and resource management strategies (Pintrich & De Groot, 1990). Students were traditionally accustomed to rely on the teacher's sense of responsibility for their learning by learning what they thought the teacher wanted them to learn. Online learning gave rise to a shift in learning responsibility from the teacher to the learner and it changed the way students studied. The students gained control over (1) what they needed to learn (2) how to learn it and (3) the time needed for learning.

The Marcato student was a resourceful student, who had confidence in his abilities to research and to understand concepts, who was ready to explain to other students and, who at the same time assessed his own learning. The Crescendo students showed a disposition to take responsibility for their learning, when they took the initiative to work without the teacher's intervention, tackled more work and became less teacher reliant.

Some learners developed self-regulatory strategies (Pintrich & De Groot, 1990) to master the subject content. Similar to the Marcato student, they eventually became capable of managing their own learning by assessing their learning, determining what was relevant to their needs, and choosing what and how to study. Doreen, the Crescendo student, who had said that researching and problem-solving were tedious developed the disposition to take responsibility for her learning by becoming conscious of her learning needs, developing an interest in doing research and showing a determination to achieve mastery of the content.

'Moodle changed the way I studied. Through Moodle I developed an interest in looking up things that I did not understand. If I do not solve the problem, I discuss it in the forum,'
Doreen (Crescendo), in-depth interviews.

This disposition was indicated in different ways; students developed different strategies such as observing other students, persisting to solve problems and to compare their understanding with that of other students. Paula observed other students and developed strategies to imitate them. She used help-seeking strategies such as learning from others and discussing with them (Pintrich & De Groot, 1990).

'...I watched the others work hard and participate, especially Kate and Anthony. I used to tell myself, why should I not do so as well...' Paula, (Crescendo), in-depth interviews.

Several online learners took ownership of their learning process and from non-collaborators in the online medium and in the face-to-face class, they became self-directed and collaborative learners. This section showed that the indicators for a disposition to take responsibility for one's learning are the development of (1) self-regulatory strategies such as identifying needs in the learning process, assessing and evaluating learning, and (2) resource management strategies which include effective study skills.

The Disposition of Taking Responsibility for the Learning of Other Students

In whole-class discussions and in small group-work, the learners established a sense of community and ensured a flow of information, social support, commitment to group goals, and satisfaction with the learning experience (Rovai et al., 2004). Abedin et al (2010) remarked that learners who have formed a community, feel a sense of belonging, of connectedness, of cohesion, of community spirit, of membership and of influence. These authors added that learners with a sense of community respect, trust, rely on each other, share emotional connection and are aware of each other's activities, perspectives and needs. Palloff and Pratt (2003) considered a disposition to take on the responsibility for community formation as an essential learner characteristic for online learning and added that the individual learning process of the virtual student is dependent on the participation and commitment of the other students in the group. This section provides evidence of students who developed the disposition to take responsibility for the learning of other students in both small group-work and whole-class discussions.

The following comments indicate the disposition of taking responsibility for the learning of other students in small group work:

'I feel greatly responsible for the others to learn. If it is just me, I may postpone doing the work, but in our group I do it. I know the others depend on me. I'd be very concerned. You do the work willingly for yourself and for the team,' Doreen (Crescendo), in-depth interviews.

The Marcato student, two Crescendo students and one Diminuendo student who were the active participants in the first term were conscious of the learning needs of other students. With a sense of responsibility, they researched their work and initiated whole-class discussions. In the week before each chemistry face-to-face class test, the Marcato student made himself available online on all evenings to discuss problems posted by other students. Following this, he also became a constant support to students in chemistry and in another subject and led face-to-face discussions in the library and in the classrooms at the College.

As evidenced in the following comment, the active learners in whole-class discussions created a community spirit and a sense of belonging amongst the participating students:

'Moodle bonded the class from the very start. It kept the class together throughout the year. We all knew we could ask in Moodle... . Moodle helped us to get to know each other and gave us the chance to help each other,' Sylvia (Crescendo), in-depth interviews.

The disposition of taking responsibility for the learning of other students was expressed in terms of (1) keeping the group collaborating in small group-work, and (2) helping students understand chemistry content in both small group-work and in whole-class discussions. This study showed that the indicators for the disposition of taking responsibility for the learning of other students are a willingness to (1) take roles and be caring, open, honest, reliable (2) visit frequently the online environment to respond to posts with problems/issues (3) research problems and issues raised by other students (4) actively take part in discussions (5) ensure that the issue/problem has been solved and understood by all concerned, and (6) convey a spirit of collaboration and connectedness.

The Three Learner Roles Model

The online setting afforded a medium which allowed the development of student roles in both the online and in the face to face class. The following comment illustrates how a Crescendo student experienced a change in roles from a passive learner or a non-collaborator to a help-seeker and eventually to a knowledge mediator.

'...in the beginning, I used to stay in Moodle and read only, because most of the students would have already discussed the issue in the forums. Then I thought Moodle was good and I myself started to ask about things in the forum, and after this, I was always checking

all threads to see where I could join in a discussion and help the others; this was two way learning, I help others and help myself to understand,..' Sylvia (Crescendo), individual interviews.

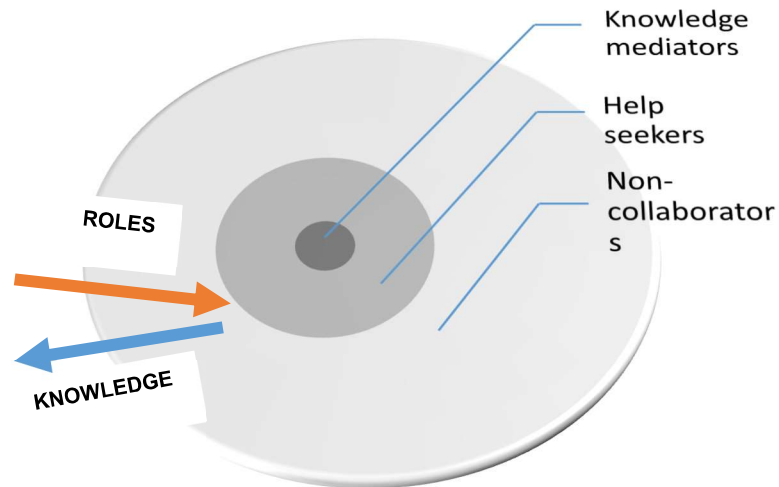
Table 5 indicates the general shift in the number of students from non-collaborators to knowledge mediators from Term 1 to Term 3.

TABLE 5
THE NUMBER OF STUDENTS IN PARTICULAR ROLES IN ONLINE DISCUSSIONS AT THE END OF EACH TERM

	Non-Collaborators	Help-seekers	Knowledge Mediators
Term 1	19	0	3
Term 2	12	5	5
Term 3	9	4	9

The number of non-collaborators or passive learners decreased and the number of knowledge mediators increased during the academic year. The dispositions which are discussed above were instrumental to maintain this flow of roles and also of knowledge as shown in the following three learner roles model.

FIGURE 2
THE THREE LEARNER ROLES MODEL



Source: Rolé, 2014

As shown in Figure 2, two processes were taking place in opposite directions:

- knowledge was generated by the knowledge-mediators; this flowed from the core to the periphery and became available to the whole community;
- a flow of roles took place from the periphery to the core as some non-collaborators became help-seekers and some of the latter became knowledge-mediators.

This research also provided evidence, that the new socio-constructive learning approaches which were developed in the online setting induced pedagogical changes in the face-to-face environments as students also started practicing help-seeker and knowledge mediator roles in the face-to-face college environment such as in the classroom, the laboratory and the library.

'Because of Moodle, everyone seemed to think that I know everything. Before a test, they come to ask me, and now it is not only chemistry, even biology, they ask me. Everyone asks me to help them with the work they do in the tutorial sessions. I end up in the library moving from one desk to another to help students,' Anthony (Marcato), in-depth interviews.

CONCLUSION

This study provided evidence that students took up opportunities to develop the online learning dispositions, which were instrumental for changes in the students as learners. These changes included:

- a change in the students' epistemological beliefs; learners became less reliant on the teacher for their learning and became aware of the benefits of collaborative learning;
- a change in learner identity- a shift in roles in quite a few students from non-collaborators to help-seekers and to knowledge mediators; Several learners became self-directed learners and collaborative learners, gained self-confidence and developed agency and empowerment;
- a change in study patterns and study habits; learners became more flexible and confident in their learning and were able to benefit from the use of collaborative online learning;
- a change in community well-being; learners developed a sense of belonging and community spirit which was created in the online community and was also transferred to the face-to-face class.

As Claxton and Carr (2004) and Dweck (2006)) proposed, the emphasis in teaching should be made at developing and cultivating positive learning dispositions in students in addition to teaching subject content. Learning facilitators such as tutors and lecturers require a disposition of resilience to direct and support positive changes in students and an ability to create the appropriate environment for their learning. As shown in this study, students need to be in learning environments which allow them to practice learning dispositions and where they can acknowledge and appreciate the learning dispositions.

ACKNOWLEDGEMENT

This study is part of a research undertaken for my doctorate thesis (see Rolé 2014) at the School of Education, University of Nottingham (March 2014). I would like to thank Professor Gordon Joyes who was my supervisor during my PhD journey.

REFERENCES

- Abedin, B., Daneshgar, F., & D'Ambra, J. (2010). Underlying factors of sense of community in asynchronous computer supported collaborative learning environments. *MERLOT Journal of Online Learning and Teaching*, 6(3), 585-596. Retrieved from http://jolt.merlot.org/vol6no3/abedin_0910.pdf
- Anderson, L.M., & Prawat, R.S. (1983). Responsibility in the classroom: a synthesis of research. *Educational Leadership*, pp. 62-66. Retrieved from http://www.ascd.org/ASCD/pdf/journals/ed_lead/el_198304_anderson.pdf
- Bernard, R.M., Abrami, P.C., Loy, Y., Borokhovski, E., Wade, A., Wozney, L., . . . Huang, B. (2004). How does distance education compare with classroom instruction?: A met-analysis of the empirical literature. *Review of Educational Research*, 74, 379-439.
- Boaler, J., & Greeno, J.G. (2000). Identity, agency and knowing in Mathematics Worlds. In J. Boaler (Ed.), *Multiple perspectives on mathematics teaching and learning* (pp. 171-200). Westport: Ablex.
- Claxton, G., & Carr, M. (2004). A framework for teaching learning: the dynamics of disposition. *Early Years*, 24, 87-97.

- Collis, B., & Moonen, J. (2001). *Flexible learning in a digital world: experiences and expectations*. London: Kogan Page.
- Day, H.I. (1982). Curiosity and the interested explorer. *NSPI Journal*, 21, 19-22.
- Deaken Crick, R., & Yu, G. (2008). Assessing learning dispositions: is the effective lifelong learning inventory valid and reliable as a measurement tool? *Educational Research*, 50, 387-402.
- Dweck, C. (2006). *Mindset: The new psychology of success*. New York: Random House.
- Garland, M.R. (1993). Student perceptions of the situational, institutional, dispositional and epistemological barriers to persistence. *Distance Education*, 14, 181-198.
- Garrison, D.R., Anderson, T., & Archer, W. (2000). Critical Enquiry in a Text-based Environment Computer Conferencing in Higher Education. *The Internet and Higher Education*, 2, 1-19.
- Goleman, D. (1996). *Emotional Intelligence*. New York: Bantam Doubleday Dell.
- Guglielmino, L.M., & Guglielmino, P.J. (2003). Identifying learners who are ready for e-learning and supporting their success. In G.M. Piskurich (Ed.), *Preparing learners for e-learning* (pp. 19-34). San Francisco CA: Pfeiffer.
- Gunawardena, C.N., Lowe, C.A., & Anderson, T. (1997). Analysis of a global online debate and the development of an interaction analysis model for examining social construction of knowledge in computer conferencing. *Journal of Educational Computing Research*, 17, 397-431
- Helsper, E., & Eynon, R. (2010). Digital natives: where is the evidence? *British Educational Research Journal*, 36, 503-520.
- Kanuka, H., & Garrison, D.R. (2004). Cognitive presence in online learning. *Journal of Computing in Higher Education*, 15, 21-39.
- Katz, L.G. (1988). What should young children be doing? *American Educator*, 12, 28-33.
- Lehmen, R.M., & Conceicao, S.C.O. (2010). *Creating a sense of presence in online teaching- How to "be there" for distance learners*. San Francisco CA: Jossey-Bass.
- Nisbet, J., & Watt, J. (1984). Case Study. In J. Bell, T. Bush, A. Fox, J. Goodey, & S. Goulding (Eds.), *Conducting small scale investigations in Educational Management* (pp. 79-92). London: Harper and Row.
- Oblinger, D.G., & Oblinger, J.L. (Eds.). (2005). *Educating the Net generation*. Retrieved from <http://www.educause.edu/ir/library/pdf/pub7101.pdf>
- Palloff, R.M., & Pratt, K. (2003). *The virtual student: a profile and guide to working with online learners*. San Francisco CA: Jossey-Bass.
- Pintrich, P.R., & De Groot, E.V. (1990). Motivational and self-regulated learning components of classroom academic performance. *Journal of Educational Psychology*, 82, 33-40.
- Prensky, B.M. (2001). Digital natives, digital immigrants. *On Horizon*, 9, 1-6.
- Rolé, S. (2014). *An inquiry into factors affecting the online learning experiences of A-level chemistry students studying in a blended learning course in a college in Malta and the impact of these experiences on learning identity*. Doctoral thesis. The University of Nottingham. Retrieved from <http://eprints.nottingham.ac.uk/14511/>
- Rolé, S. (2020, February). The identification of key online learning dispositions of college students studying in a blended learning course. In *Proceedings of the 3rd International Conference on research in Education, Teaching and Learning*. Rome.
- Rovai, A.P., Wightinga, M.J., & Lucking, R. (2004). The classroom and school community inventory: development, refinement, and validation of a self-report measure for educational research. *Internet and Higher Education*, 7, 263-280.
- Smith, J.A., Flowers, P., & Larkin, M. (2009). *Interpretive Phenomenological Analysis: Theory, Method and Research*. London: Sage.
- Stanford-Bowers, D.E. (2008). Persistence in online classes: a study of perceptions among community college stakeholders. *MERLOT Journal of Online Learning and Teaching*, 4, 37-50.
- Vygotsky, L.S. (1978). *L. S. Vygotsky: Mind in Society: The development of higher psychological processes*. Edited by M. Cole, V. John-Steiner, S. Scribner and E. Soubberman, translated by A.R. Luria, M. Lopez Morillas, M. Cole and J. Wertsch. London: Harvard University Press.