How students evaluate innovativeness and expected needs satisfaction of digital educational projects in an academic MOOC
Elaborare progetti digitali educativi in un MOOC. L'innovazione e la soddisfazione percepita dagli studenti universitari

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ABSTRACT The "New Media in Education MOOC" trains education students in developing educational project plans based on new media and networked pedagogy. Students participate in peer assessments of project plans based on five evaluation criteria that include innovativeness and expected needs satisfaction. An action research was conducted based on a content analysis of 789 student assessments regarding 89 project plans. The aim of the study was to explore how students assess their peers' project plans and use these insights to improve the peer assessment process and the guideline criteria. Findings indicate that students mainly used two perspectives for assessing the expected needs satisfaction criterion: traditional pedagogy and constructivist pedagogy. The findings led to further elaboration both of the innovativeness criterion (and its extension beyond technological innovation) and of the expected need satisfaction criterion and its extension beyond cognitive needs (e.g., social, emotional, cultural and democratic needs). Additional criteria for the assessment guidelines are recommended.

KEYWORDS Peer Assessment in MOOC; Entrepreneurship in Education; Innovativeness in Education; Project Based Learning; Social-Emotional Learning.

SOMMARIO Una ricerca azione è stata condotta sulla base di 789 valutazioni degli studenti su 89 progetti relativi all'utilizzo dei nuovi media. Lo scopo dello studio era quello di esplorare come gli studenti valutano i progetti elaborati dai loro compagni e di utilizzare tali intuizioni per migliorare i criteri della valutazione fra pari. I risultati indicano che gli studenti usano principalmente due prospettive per valutare la soddisfazione: uno collegato alla memorizzazione de comprensione di informazioni, e uno collegato al costruttivismo, focalizzato sugli aspetti emozionali, sociali, culturali e centrato sulla valutazione e creazione di nuove conoscenze. Le conclusioni hanno portato all'elaborazione di criteri innovativi e alla loro estensione oltre le questioni tecnologiche.

1. INTRODUCTION

The accelerated rate of change in technologies, and modes of community and society pose complex challenges and require fundamental changes in teaching aims, approaches and methods, not to mention in teacher training, including the desired knowledge and skills that should be acquired (Chen & Kortz, 2011; Christensen, Horn, & Johnson, 2008; Wadmany, 2017).

In view of accelerated emergence of technological innovations and growing job instability (Harari, 2019), it is commonly accepted in the developed world that the nurturing of entrepreneurial skills, which are defined as the ability to generate new and creative ideas and create value (Volkmann, Wilson, Vyakarnam, Mariotti, & Sepulveda, 2009), as well as the development of entrepreneurship educational programs, are essential in higher education institutions and schools (Robinson & Aronica, 2016). In Israel, this developing trend of entrepreneurship in education has been strengthened by a policy decision by the Commission of Higher Education (2017). The CHE's Planning and Budgeting Committee has led steps to establish innovation and entrepreneurship centers in academic institutions and to support the design and development of online academic courses. New Media in Education is a MOOC that was developed as part of CHE's initiative. The course is the first MOOC to be taught at a teacher training college in Israel. It is designed for all students in teacher training colleges in the country. The aim of the course is to train education students to be entrepreneurs who are able to develop and implement innovative educational projects based on new media tools and networked pedagogy. The course also includes a peer assessment module, in which students evaluate the new media-based projects of their peers using a quantitative scale and a written assessment. The current research reported here accompanied the introduction of this course in 2015 and 2016 at one academic teacher training college in Israel.

2. THEORETICAL FRAMEWORK

Development of the New Media in Education MOOC was inspired by the Technology, Pedagogy, and Content Knowledge (TPCK) model (Mishra & Koehler, 2006), based on the premise that successful assimilation of technology in education requires the integration of three domains of knowledge: technological knowledge, pedagogical knowledge, and content knowledge.

The connection between entrepreneurship education and new media, which marks the transition from passive media consumers to active 'prosumers' who learn, think, and independently create contents and tools, emerged directly from the features of interactive Web 2.0 and platform-based digital content creation tools. New media have penetrated all areas of life. They offer free, accessible tools for creating online communities, and tools to create and share content, applications, and games online. New media have the potential to revolutionize education by facilitating independent and shared learning and production, effectively creating Education 2.0 (Bates, 2015; Waks, 2016).

2.1. *The peer assessment challenge in MOOCs – Assessing open constructivist projects*

The global use of MOOCs for higher education learning has spread widely in the past decade. Today, the challenge for MOOCs is to incorporate innovative constructivist pedagogy based on developing high order thinking levels and creativity, together with peer assessment of open-ended tasks performed by other students. The challenge of assessing open-ended assignments is complex; peer assessment may contribute to the learn-

ing process and reduce MOOC instructors' burden of checking and evaluating a large number of open-ended assignments (Hativa, 2013; Wadmany & Melamed, 2018). In MOOCs based on creative tasks and interactive media, peer assessment not only summarizes learning after completion of the course but is also an integral part of students' learning for both the assessing and the assessed students. Research findings indicate that students consider peer assessment to be credible and fair when guidelines are clear (Heng, Robinson, & Young, 2014). The introduction of guidelines for evaluation of open constructivist tasks in MOOCs is one of the most important challenges that MOOC developers currently face (Sandeen, 2013; Suen, 2014).

2.2. *The challenge of assessing innovativeness of educational projects*

In view of the trend to develop entrepreneurial education and innovation, the concept of innovativeness warrants attention. Innovativeness is considered an original, refreshing approach that deviates from the familiar, or as a process of change that offers a new solution to a problem and successfully generates change (Fois & Barak, 2016).

The significance and definitions attributed to innovativeness have changed since the end of the nineteenth century. Since the 2000s, the term has come into intensive use in marketing contexts. Innovativeness has been attached to almost every product, process, and phenomenon, yet definitions remain ambiguous and contested. The term has shifted from a defined, structured system of technological features to a system of multiple marketing, design, organizational, and social dimensions (Kotsemir & Abroskin, 2013). Kotsemir and Abroskin argue that the contemporary trend of multiple conceptualizations of innovativeness demands that theoreticians cope with the challenge of incorporating the various concepts and categories of innovativeness into a structured conceptual framework that will assist in discriminating between minor, cosmetic change and revolutionary, fundamental change.

Research has noted students' difficulties in assessing innovativeness in education (Fois & Barak, 2016;). While innovativeness is frequently used as a criterion in project assessment, the definition of this concept is complex, comparative, and multi-dimensional (Oman, Tumer, Wood, & Seepersand, 2013). This situation calls for the investment of resources in the development of validated guidelines for assessing innovativeness and evaluating the success of entrepreneurship education (Duval-Couetil, 2013).

According to Fois and Barak (2016), education systems - in contrast to marketing and business systems - focus on heritage preservation and its transmission to the younger generation, which explains the strong tension between preservation and innovation in education. Pressure for innovativeness in education is a function of technological, communication, and social changes occurring outside the education system. One of the barriers to the dissemination of innovation in educational systems is the difficulty in assessing innovativeness in teachers' work, in students' products, in learning processes, and in educational organizations.

Digital environments based on networked new media facilitate the creation of new digital products by allowing users to reproduce, enhance, and edit media (Jenkins, Clinton, Purushotma, Robison, & Weigel, 2006). This situation highlights the significance of forms of innovation other than technological innovation, such as content and design innovation, the discovery of new needs and the discovery of new audiences, and remix-based innovation. In such a dynamic and interactive environment, it is especially challenging to assess innovativeness.

2.3. *The challenge of assessing expected needs satisfaction of educational projects*

Many educators seek models to help them negotiate the abundance of available technologies, determine which technologies are best suited for use, and select the technologies that best satisfy the needs of their education practice. The SAMR model (Substitution Augmentation Modification Redefinition) developed by Puentedura (2014) offers a hierarchical four-level taxonomy for selecting, using, and assessing innova-

tive technology according to the extent to which a new technology constitutes a substitute that satisfies the same needs as the replaced technology and/or the extent to which it defines and satisfies new needs. Critics of this model argue, however, that the model fails to address learning contents, and emphasizes assessment of technological outcomes at the expense of process assessment (Hamilton, Rosenberg, & Akcaoglu, 2016). Chee (2015) found that two types of pedagogies relate differently to learners' needs in online game design. Traditional pedagogies, which are teacher-centered, focus on teaching goals, while constructivist pedagogies, which are student-centered, focus on learners' needs. According to Salomon (1981), the teacher's role as mediator in media education is to identify the medium and the contents that are appropriate to achieve educational goals in a manner relevant to learners' needs. More recent perspectives view technology as an integral part of authentic human experience whose outcomes of use are dynamic and extend beyond developers' educational and scholastic aims, and perceived user needs (Verbeek, 2005).

According to the uses and gratifications communications theory, media users actively choose media to satisfy various needs (Katz, Gurevitch, & Haas, 1973). The shift from mass media to interactive and networked media has contributed to the reconfiguration and expansion of the needs that new media satisfy. Leung (2013) found that content generation using social media satisfies five socio-psychological needs: showing affection, venting negative feelings, gaining recognition, accessing entertainment, and fulfilling cognitive needs.

The penetration of new media into educational and scholastic uses calls for the understanding that learning and education are not merely processes that satisfy Bloom's taxonomy (Anderson & Krathwohl, 2001) of goals for educational activities assessment: new media platforms are often playful, participatory and creative learning environments that are based on intrinsic motivation factors for learning, such as curiosity (Hobbs, 2019; Jenkins et al., 2006). These platforms enable educational processes such as identity construction, ethical curation of media, multicultural collaborations, the giving and receiving of emotional support, development of a sense of well-being, and implementation of critical thinking and creative skills in social justice activism. It is important to identify the needs that students have when evaluating educational project plans based on new media.

2.4. *Peer assessment in the New Media in Education MOOC*

The current study accompanied the New Media in Education MOOC, which was developed jointly by an academic teaching college in Israel, the country's Ministry of Education, and a commercial educational firm. This was the first MOOC in academic teachers' education in Israel that emphasized entrepreneurship theory and practice based on new media and networked pedagogy, and that included the development of innovative project plans. Course contents provide fundamental technological knowledge (e.g., operating and developing personal and group pages on social media, applications, and games), pedagogical knowledge (Education 2.0, teaching strategies including the flipped classroom, SOLE, and MOOCs), and content knowledge (principles of entrepreneurship, the effects of the information revolution on education, and disruptive innovation).

Students in the New Media in Education MOOC were required to submit plans for an innovative educational project and assess three plans for educational projects developed by their fellow participants, using assessment guidelines. Evaluation of a project accounted for 60% of the final grade (30% peer assessment and 30% evaluation by the course instructors). Students completed a project assessment form for each of the three peer projects. This comprised two distinct forms of assessment. One was numerical assessment, namely scores (from 1 to 10) on five dimensions:

        1) Expected needs satisfaction of target audiences (e.g., an explanation of educational, emotional, social and cultural needs). Audiences could be learners, teachers, parents, adminis-

trators in schools and include informal education.

2) Innovativeness (e.g., an explanation of the novel aspects of a technological platform, design, content, and/or pedagogy that is used in the project).

3) Use of new media tools (e.g., an explanation of the advantages of social media, apps, or online games that are used in the project).

4) Networked pedagogy (e.g., collaborative online pedagogies, and elements of traditional pedagogies such as memorization of knowledge, which can be a springboard for collaborative learning).

5) Feasibility (e.g., a written description of how the project plan was to be implemented).

The other assessment form included a written assessment of the project, in which students addressed three guiding questions ("What is good about this project?", "What can be improved about this project?", and "How would you summarize your assessment of this project?"). At the conclusion of the peer assessment phase, students received their grade on their project as well as copies of all their peers' written assessments of their project.

A study of the quantitative peer assessments in the New Media in Education MOOC (Melamed & Wadmany, 2018; Wadmany & Melamed, 2018) indicates that peer scores on the five assessment criteria explain 70% of the variance in students' peer assessment grades (r2 = 0.708), which implies that these criteria failed to capture the factors that account for the remaining 30% of the variance in the grades.

Also, based on these studies, we found that the strongest correlations and predictors of final peer-assessed scores are expected needs satisfaction ($r = 0.721$) ($p < .000$) and innovativeness ($r = 0.654$) ($p < .000$).

Following these findings, which highlight the importance of innovativeness and expected needs satisfaction criteria in peer assessments, a qualitative content analysis of students' written peer assessments was performed to discover how students evaluate peers' plans in terms of (a) satisfaction of the project audiences' expected needs and (b) innovativeness. The content analysis also aimed to discover additional criteria that are relevant for assessing educational project plans based on new media.

3. RESEARCH QUESTIONS

The following research questions were defined:

- How do students assess their peers' project plans and justify their scores on a project's expected needs satisfaction in the written assessments?

- How do student assess their peers' project plans and justify their scores on a project's innovativeness in the written assessments?

- What additional criteria do students use when they evaluate project plans in the written assessments?

4. METHODOLOGY

This is an action research study based on qualitative content analysis of written peer assessments of students' projects, which aims to identify patterns of project evaluation based on new media. The qualitative content analysis is based on the phenomenological inquiry approach (Marton, 1986) and on the assumption that new media, as well as educational projects based on new media, satisfy various needs and reflect constructivist as well as traditional pedagogies. The analysis is also based on the assumption that the evaluation of innovativeness might be subjective and unclear to students (Fois & Barak, 2016). Eighty-nine student projects were submitted in the course and assessed by 263 students, each of whom assessed three project

plans. Statements were extracted from 789 written assessments and classified based on constant comparison. The phenomenological approach is based on the collection of respondents' descriptions, sentences, ideas, and thoughts. The data analysis first identifies common features and patterns in the collected data, which are used to form the initial conceptual categories. After the categories are adjusted and arranged in a hierarchy, the inclusion criteria for each category are determined.

The data were validated as follows. The two researchers independently analyzed the data extracted from the students' assessments. The researchers discussed the statements and analyses until all differences were resolved. To address external validity, the findings were crossed-referenced with other findings from the research literature, and the researchers' generalizations were reviewed.

5. FINDINGS

5.1. *Students' assessment of expected needs satisfaction*

According to the students' written assessments, the projects satisfied the needs of a broad range of target groups, including children, adolescents, pupils, parents, teachers, experts, artists, individuals with specific disabilities, individuals with learning disabilities, a variety of gender groups (LGBTQ), religious groups (observant/secular), ethnic/cultural groups (Jews, Arabs, Israelis, students from other countries), high- and low-leaning achieving students, students from affluent/disadvantaged backgrounds, and children from bereaved families. The following types of needs were found in students' written assessments.

1) Cognitive, academic needs:
   a. Traditional learning in the spirit of formative educational pedagogy, which considers learning as the transfer of knowledge from teacher to student based on extrinsic motives (e.g., practice toward exams and success at matriculation exams).
   b. Knowledge organization and retention using online means and online courses such as MOOCs.
   c. Practical exercises.
   d. Online tutoring toward exams.
   e. Increased student learning efficiency by exchanging summaries
   f. students' shared learning toward an exam.

2) Individual emotional needs:
   a. The project sees pupils as individuals who are more than the sum of their grades.
   b. The project functions as a release valve for venting frustration and violence ("the project allows students to express violent impulses and frustrations and to stop to think about these, using tools that they feel comfortable with").
   c. Empowerment ("the idea could inspire many children with low self-esteem").
   d. Entertainment and enjoyment through interesting learning that is relevant to children's worlds (the project is "cool,", "relevant to adolescents' lives," "creates constant interest," "arouses curiosity, and has game-like features").
   e. Morals ("I liked the idea that the project is based on values and principles", "It seems that this idea comes from a personal need and that's always a good motive for entrepreneurship"). Online platforms were lauded as an alternative anonymous space of discourse about personal and intimate issues including sex, violence, and health problems ("The project helps pupils who have experiences that they don't want to talk about out loud and who prefer to talk about them through online platforms, anonymously").

3) Social-cultural needs:
   a. The need to interact with others in order to give and receive feedback.
   b. The need to know and respect others who are different.
   c. The need to share events from their own lives.
   d. The need to create classroom culture and cohesion.
   e. Sensitivity to the need to empower pupils with special needs and pupils from disadvantaged environments, based on the view of disabilities as differences rather than deviations from the norm ("I loved the idea of creating a new reference point for ADHD, and treating it as a difference and not a defect, just like cultural sensitivity and openness to cultural differences"). It is also interesting to note that the new media's ability to break out of the boundaries of time and place is also considered a means of support for development of inter-cultural relations.

4) Developing learners' independence, thinking and creativity:
   a. Transferring responsibility for learning to learners
   b. Giving learners freedom of choice and expression.
   c. Enabling exploration.
   d. Functioning as a source of inspiration and creativity.
   e. Expanding opportunities for students to share ideas and creations.
   f. Personalizing learning for diverse student groups.

In the written assessments, students also referred to teachers' freedom of choice and freedom of expression. Communication needs: some of the projects were praised for creating a bridge and facilitating sharing between different target audiences: parents and teachers, parents and pupils, teachers and pupils, between pupils in different schools, from different countries, between experts and the general public, between cultural and religious groups from different places and from different socioeconomic status in Israel. By satisfying communication needs, the project plans potentially expose pupils to other worlds, allowing them to become familiar with and accept others who are different.

Economic, marketing, and publishing needs: students praised projects that address economic needs such as a shortage of resources, cost savings through collaboration, and obtaining free expert advice or free resources. Students' assessments also referred to creators' need to publish and distribute their materials on digital platforms and in offline events.

5.2. *Students' assessments of projects' innovativeness*

Students' statements addressing the innovativeness of the evaluated projects were extracted in the qualitative content analysis of the students' written assessments. The thematic analysis of the assessments indicates that students consider innovativeness to be a complex assessment category that includes secondary categories such as technological innovations, content innovations, design innovations, pedagogical innovations, and a mix of multiple types of innovations.

The students consider projects as innovative especially when a prominent feature of new technology is used. Examples include the use of Facebook's timeline for teaching the development of historical events, or the use of social media profiles to create profiles of imaginary characters from films or plays, as well as encouraging students to engage in dialogues on social media.

Assessments of innovativeness are time dependent and also dependent on users' knowledge about technology and media. The students' assessments reflect conflicts of opinion regarding the innovativeness of Facebook-based projects: while some students referred to these projects as innovative, others claimed that Facebook is an "outdated" form of technology because "more than a decade has passed since Facebook

was established and adolescents use Snapchat or Instagram and not Facebook." Those who claim that Facebook-based projects are innovative state that "the use of Facebook in the education system is innovative." According to the students' assessments, technologies such as WhatsApp, Snapchat, Instagram, and Pinterest are still considered innovative, as is the use of apps or simulators. Assessments of technological innovations are also a function of the assessing students' field of education. Students of design, communications and film are more familiar with new media use and tended to define Facebook as an outdated technology; they considered creating and uploading video clips as a less innovative component of a project. However, students of theatre and dance perceived such activities as being more innovative. Even if a project was not assessed as being innovative, it was considered a good project and even an innovative project if it satisfied an important justifiable need.

Based on the students' assessments of innovativeness, we can identify several secondary categories of innovativeness assessment:

- Creative innovativeness - creative ideas (such as assigning a creative name to the Facebook group, website, or product).
- Implementing innovative technology (such as a digital Family Tree platform, the use of hashtags allowing pupils to see many connections in unconventional ways, the use of VR and AR).
- New technology satisfying existing needs – most of the students applaud the use of a social media platform to satisfy an existing need (such as the case whereby use of Facebook pages to create a dialogue between the characters in a play satisfies the need for "unconventional educational methods" instead of conventional face-to-face dialogue in a play).
- Developing innovative technology, such as a plan to develop a VR-based simulator to cope with stage fright (this category was very rare).
- Content and design innovativeness (such as creating a series of video clips on a movement notation language for dancing lessons or producing a fanzine on LGTB culture).
- Marketing innovativeness (such as discovery of new target audiences, adapting the content and design of a social media page to a specific niche market, allowing previously silent groups to express their voices). In some cases, scaling up a small-scale educational activity to a larger audience was evaluated as innovative.
- Pedagogic innovativeness based on methods that constitute alternatives to traditional classes (such as constructivist, creative and open learning, a flipped class, cooperative learning, project-based learning, SOLE, MOOCs, peer assessment and breaking the time and space borders of face-to-face classes through online meetings with experts and groups).
- Remix innovativeness, i.e. that based on new multi-dimensional combinations (such as the establishment of an online learning center for pupils with learning disabilities, where learning incorporates a range of teaching-learning technologies, pedagogies and contents, and combines personal and collaborative learning).

5.3. *Additional criteria used by students in their peer assessments*

The summative written peer assessments indicate that the students also used the following criteria to assess the project plans, although these criteria were not noted in the assessment guidelines:

1) Clarity and language - The majority of assessments that called for improvements related to project plans' lack of clear explanations or insufficiently detailed project description. Assessments also addressed the need to improve the language of online contents and online talks.

2) Values, ethics and democratic culture - The student assessments attributed significance to and commended projects that dealt with the following values and ethical aspects: collaboration and mutual assistance; helping pupils with learning disabilities (dyslexia, ADHD) to cope better with their challenges; cultivating class and community solidarity, a sense of belonging and cohesion, or sustainability and environmentalism; aiding disadvantaged individuals and reducing gaps and inequalities between the advantaged and disadvantaged; generating economic savings or savings in time; and connecting reality and virtual reality ("photography gets the children out of the classroom and connects them to reality" "the use of VR creates a strong sense of reality"). Many written assessments noted projects that focus on democratic and humanistic values. Students' written assessments commended sensitivity to others' culture, implementation of democratic and humanistic values and principles such as freedom of expression, freedom of choice, transparency of information, equal opportunities, and equal rights for teachers and for pupils. Students consider new media tools as means for creating a democratic and open-minded space that is an alternative to face-to-face class.

3) Motivating learner participation in the project - Aware of the challenge of motivating pupils' participation in projects and ensuring engagement on social media and the Internet, the majority of students commented on how project plans motivated and encouraged pupils participation in online interactive educational activities rather than obliging them to do so.

Students referred to extrinsic participation motives such as graded activities, scholarships, competitive activities and earning points in online games, savings in the cost of private tutors, and satisfaction of pupils' need for social status and reputation ("the blog could serve as a business card"). Regarding this last motive, one student questioned whether pupils' good deeds should be published on social media ("I think that when someone asks you to do something good, it doesn't have to be recorded on Facebook. On the contrary! Do it to give to others and not for the honour").

The students' written assessments also referred to project participants' intrinsic participation motives, noting "The project connects to adolescents' souls, ensures constant interest, curiosity, fun, a game-like nature", "offers intellectual and problem solving challenges, and a hands-on method for studying and independent learning", "The project creates a sense of intimacy and the opportunity to participate in an authentic, uncensored conversation."

6. DISCUSSION AND CONCLUSIONS

The objective of the current action research was to evaluate the assessment guidelines specifically developed to assist students' peer assessments of project plans in the New Media in Education MOOC based on the criteria of expected needs satisfaction and innovativeness, and to revise the guidelines accordingly.

The present qualitative study indicates that the students' written assessments were intuitively in line with Mishra and Koehler's (2006) TPCK model of educational design, and related its three constituent components: technology, content, and pedagogy. The findings of this study also support other work and research on the importance of humanistic knowledge in the digital age, which includes cultural competence, ethical-emotional awareness and job skills (Kereluik, Mishra, Fahnoe, & Terry, 2013), as well as the incorporation of democratic and humanistic values (de Platchett, 2008; Lee, 2008), and using the TPCK model to reduce the digital and cultural divide (Kelly, 2008).

The salience of the expected need satisfaction criterion and of the innovativeness criterion in previous quantitative studies (Wadmany & Melamed, 2018), as well as in the present qualitative study, is consistent

with the widely accepted idea that communication technologies and media are means for satisfying various user needs as an integral part of authentic human experience.

The qualitative analysis of expected needs satisfaction assessments pointed to two prominent patterns of assessment that reflect distinct educational approaches: traditional pedagogy and constructivist pedagogy. The assessments grounded in the traditional approach assessed projects according to the extent to which they satisfied educational and scholastic needs and needs for efficient learning of information, knowledge and tools, based on the lower levels of Bloom's taxonomy (knowledge, comprehension and application) (Krathwohl, 2002). This pattern is based on extrinsic motivation of learners.

A large portion of the written peer assessments commend satisfaction of cognitive, emotional, social, cultural and other needs from a constructivist educational perspective. This perspective considers new media tools as means for cultivating independent, active, interactive, critical, creative learners who are intrinsically motivated and engaged in learning through interest, joy, excitement, challenge, need for expression and creativity, motivation to contribute to society and to social change (Bates, 2015; de Platchett, 2008; Hobbs, 2019; Jenkins et al., 2006; Lee, 2008; Waks, 2016).

Assessments grounded in the constructivist approach were based on the satisfaction of needs that extended beyond fundamental educational and scholastic needs, such the satisfaction of emotional, social, cultural, economic, and organizational needs, and the extent to which the projects reflected cultural sensitivity and democratic values, such as freedom of expression, freedom of choice, and diversity. Assessments following a constructivist approach addressed the realization of higher order activities on Bloom's taxonomy - analysis, evaluation, and creativity - and commended learners' active participation in evaluation, learning and creativity based on intrinsic motivations.

In view of these patterns, we advise expanding the guidelines on the expected needs satisfaction criterion by instructing students to evaluate project plans not only on the basis of satisfaction of traditional educational needs, such as rote learning, practice, and application, but also to address the extent to which the project satisfies emotional, social, cultural, economic, and organizational needs. Following Pink (2011), we will advise students to adapt the project type to the type of intrinsic and/or extrinsic participation motives.

In line with Kotsemir and Abroskin's (2013) theoretical review, we also found that the innovativeness criterion for assessing educational projects is a multi-dimensional concept that encompasses multiple types of innovativeness: technological, content (thematic), design, marketing, pedagogy and remix innovativeness. Following Fois and Barak's (2016) argument, all the project plans submitted by MOOC participants incorporate the use of existing new media tools and a type of remix, and therefore do not constitute radical or disruptive innovations. This is not surprising because remix is the most accessible method of innovativeness in a digital environment (Jenkins et al., 2006) and studies show that innovation is more often incremental than disruptive (Christensen, Horn, & Johnson, 2008).

Based on the students' written assessments, we also recommend adding the following criteria to the assessment guidelines:

- Values, culture and ethics - It is important to assess a project's humanistic values and democratic principles, such as freedom of expression, online privacy, and the existence of a safe space for expression of diverse opinions and discourse that is authentic yet responsible and committed to truth-finding and equality. These values are reflected in diversity education, which strives to reduce social and academic disparities and help disadvantaged pupils by giving them a platform for expressing their voice;

- Motivations for participation - The assessment guidelines should also direct students to evaluate whether a project addresses teachers' and pupils' intrinsic motivations to participate in the project (e.g., interest, excitement, challenge, desire to share and contribute to

others) as well as extrinsic motivations (e.g., grades, points, prizes (Pink, 2011);

- Clarity and language of the project plan - This criterion featured very prominently in the peer assessments, specifically in the students' recommendations for improving the project plans. It is very important to add this criterion to the assessment guidelines (Hativa, 1998).

6.1. *Practical implications for peer assessment guidelines*

Students play a major role in the assessment processes in MOOCs based on development of educational projects, like the New Media in Education MOOC.

The findings of the present study have led to important insights that potentially improve the assessment process of project plans in general, and of peer assessments in MOOCs in general, specifically with reference to the following criteria:

1) Innovativeness - Rather than assessment of exclusively technological innovation, assessments should be based on five sub-categories of innovativeness: technological innovativeness, content innovativeness, design innovativeness, pedagogical innovativeness, and re-mix innovativeness (new combinations and interplay of all aspects).

2) Expected needs satisfaction - Two assessment patterns were evident, reflecting a traditional approach and a constructivist approach. These approaches address - in various manners - needs, motivations for participating in learning, cultural sensitivity, and moral principles. new media tools contribute to the implementation of these two teaching patterns but the integration of new media tools and constructivist pedagogy in a learning environment that facilitates open teaching, freedom of expression, and voluntary participation in discourse and creation (Bates, 2015; Jenkins et al., 2006; Waks, 2016) can create an educational breakthrough. If our aim is to trigger such a breakthrough, it is important to clarify the broad range of needs that educational projects based on new media can satisfy, from cognitive and learning needs to individual, emotional social, and cultural and other needs. Assessment guidelines should reflect this range.

We also recommend including written assessments of these two criteria in the peer assessment procedure, in addition to the quantitative evaluations. Furthermore, we recommend adding the following three criteria to the assessment guidelines for the written assessment:

1) Motivation to participate - Since social media and open communication platforms are based on user choice and spontaneous participation, project plans should explain the project features that will motivate teachers and pupils to participate in the project, and address factors that might undermine such motivations.

2) Values, culture and ethics – As the projects are based on social media and user content, project designers should use their ethical discretion in developing and evaluating project plans, especially when implementation entails the disclosure of participants' personal and emotional information, and advice that might compromise participants' health or safety.

3) Clarity – One of the main reasons for low assessment scores was ambiguity and lack of clarity of the project plans, specifically explanation of the projects and method of operation. The assessment guidelines should therefore also include the criterion of programmatic clarity.

In summary, the findings of the present study indicate that students' written assessments play an important role in massive online courses such as MOOCs, which are based on peer assessments of students' educational project plans.

Implementing the findings of this study to further develop guidelines for assessing project plans may increase the effectiveness of peer assessments of educational projects based on innovative and creative en-

trepreneurship in MOOCs. We intend to incorporate the insights of the present study into the next version of the assessment guidelines, to add the recommended criteria, and to allow students to suggest additional criteria in peer assessment.

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