

Improving the Learning Experience by Harnessing Digital Technology

Pierre JARMÉUS, Carl SUNDBERG, Simone MASOG, Per ANDERSSON, Christopher ROSENQVIST and Panagiota KOULOUVARI R.

Department of Marketing and Strategy, Stockholm School of Economics
Stockholm, 113-83, Sweden

ABSTRACT

The paper will explore how a social media based E-learning 2.0 solution for formal learning (social IS) can be implemented, focusing on the technology acceptance process.

The paper aims to increase the knowledge on how the acceptance regarding social media based E-learning 2.0 information systems for formal learning can be increased and how the acceptance affects the social learning experience. To achieve this, the paper relies on both a qualitative and quantitative approach and is primarily inductive. The paper concludes that the acceptance cannot be seen as a linear process, as is common practice. Instead, one should see the process of acceptance as interlinked with the experience and external variables in a continuous process that can either 'spiral' upwards or downwards. Furthermore, the paper identifies the problem of innovation resistance. The paper then analyzes information gathered from industry experts, practitioners and a live case to find how one can improve acceptance and thereby the social learning experience. Once these variables have been identified the paper presents strategic advice. The paper ends by a discussion of the results, both regarding the impact and contrast to previous research as well as highlighting areas for further research.

Keywords: E-learning, Experience, Social media, Strategy, Technology acceptance

1. INTRODUCTION

The digitalization of society has had an immense impact on individual's lifestyle and behaviour. The subsequent rise of social media has made the individual's life become increasingly organized around networks, collaboration and connection [1]. There are over 500 million Facebook users [2] and over 19 million Wordpress.com sites in existence with more than 286 million people reading them [3]. In response to this, a new breed is born today under the banner of Digital Natives. Digital Natives are not only familiar with handling digital technology, they are also believed to be more likely to excel when this trait is fully utilized. When, for example, social media features are implemented into organizations it was found that digital natives, learn more in less time: in 38 percent of the cases, and learn truly useful things: 34 percent of the time. This is in stark contrast to baby boomers who are around the low 20 percentile for both aspect of learning [4]. This marriage of digital technology and social learning has given rise to E-learning 2.0, which entails social construction of knowledge through digital technology. Realizing the potential of E-learning 2.0 many claim that "...social-networking offerings now being developed for the corporate world will create huge benefits for businesses"

[5]. Furthermore, traditional benefits of E-learning are recognized the ease of access to resources [6] and the cost savings through reduced training time and geographical restraint [7] which are additional motivational factors to adopt to it. However, despite the promise E-learning 2.0 and social media hold for formal learning and the rise of Digital Natives, the scientific evidence for E-learning 2.0 is limited [8]. The summarized research trends of E-learning between 2000-2008 indicate a lack of focus on the social aspect of E-learning and instead more emphasis is put on teaching practices [9]. Furthermore, the E-learning implementation literature appear to have primarily focused on issues relating more directly to the actual technology. This is reflected in the fact that many exclusively apply the Technology Acceptance Model (TAM) when it comes to E-learning implementation [10, 11]. There is strong need to understand the social aspects of E-learning as teaching pedagogy in society is shifting from the first and second generation instruction design (objectivism and cognitive constructivism) to today's third generation (social constructivism). Social constructivism focuses on the psychology of the learners and the rich social interaction between various parties. As more Digital Natives become integrated into society, training and development programs must be adapted to engage them effectively. The literature looking beyond the technology aspect, has tended to focus on the various stakeholders and their importance [12], staffing issues and the training of participants [13]. Furthermore, the instructor importance in relation to E-learning adoption was analyzed by looking at the characteristics [14] and openness to change [15]. As for the practical matter of implementing it in incremental steps or in a 'Big Bang' fashion it is believed that the strategy must reflect the objectives and constraints of the organization [16]. Besides the extrinsic environment, intrinsic motivators need also to be considered in order to gauge the individual [17]. Finally, implementation needs to be viewed as a series of overlapping and continual cycles, that consist of preparing, launching and sustain. In addition, a marketing communication plan and a change communication plan are needed in order to effectively promote it to the user group [18].

2. METHODOLOGY

The research was inductive and utilized a qualitative approach supported by a quantitative study. By utilizing this combination, a clearer both static and procedural picture could be achieved. Furthermore, the qualitative approach was primarily relied upon due to the inductive, interpretivist and constructionist view [19].

Before conducting the primary research, a pre-study was conducted that consisted of 13 semi-structured interviews and a focus group; all with experts and/or practitioners in relation to

E-learning. The pre-study [20] gave valuable insights that would guide the remaining research and pinpoint issues to be further investigated. Once the pre-study was completed, 17 semi-structured interviews with experts/practitioners, from three different continents with a main focus on Sweden, were conducted in direct relation to the topic of the paper. Furthermore, an E-learning 2.0 platform was designed for a master level course at the Stockholm School of Economics and its use observed. In addition, the students were interviewed through a focus group and further data was collected through a quantitative longitudinal study within the class. Finally, in regard to reliability and validity multiple steps were taken. For a detailed description of the methodology please see Jarméus & Sundberg [21].

3. SUPPORTING THEORIES

Experience Formation

Experience formation is based on the two factors of participation and connection, with the combination of the two result in four broad experiences; Entertainment, Educational, Esthetic and Escapist [22]. To further understand experience formation, the context in which the experience takes place needs to be considered. Changing the physical context [23] or social context [24] can affect the experience formation. Within the element of context one also needs to consider 'expectations' since if they are not met the individual will experience dissatisfaction [25]. In relation to expectations is the degree to which the 'distance' between an individual and an object, event etc, exists. The greater the distance, whether it is temporal, spatial or social, the more likely the individual is to view the object or event abstractly as opposed to concretely [26]. Finally, in order to form an optimal experience for the individual a certain 'flow' must be reached in individuals' mind when one's skills are neither overmatched nor underutilized to meet a given challenge. The best moments for individuals usually occur when a person's body or mind is stretched to its limits in a *voluntary* effort to accomplish something *difficult* and *worthwhile* [27].

Learning Theory

Learning is broadly divided into cognitive and affective learning. Cognitive learning refers to how individuals intake and process information. Myers Briggs Personality Type Indicator (MBTI) classifies individual's cognitive learning styles across four dimensions: Extraversion/Introversion, Sensing/Intuition, Thinking/Feeling and Judging/Perception [28]. Learning that occurs within a group is in turn affected by the cognitive styles and social interactions within the team, which in turn influences how the group performs. Students in groups with divergent learning styles are more likely to have difficulty learning than students in groups with more homogeneous learning styles. However, there is also evidence that groups with a heterogeneous blend of cognitive styles can outperform groups with more homogeneous learning styles [29]. Furthermore, it was discovered that one of the strongest determinants of student's success in higher education was their ability to participate in small study groups [30]. There is also a rising opinion, as outlined by Experiential Learning Theory, which states that learning should be perceived as a process and not a set of outcomes. Through the process of conflict and disagreement, knowledge is created through the transformation of experience. In the process an individual's knowledge is examined and retested so that when it is reintegrated it is increasingly refined [31].

The affective domain is rooted in the emotional life of the student and reflects the students' beliefs, attitudes, impressions, desires, feelings, values, preferences, and interests [32]. It has been proven that for example having a slight positive mood does not just make you feel a little better but also induces a different kind of thinking. When we change what we call our 'emotional states', we are switching between different ways to think [33]. Similar to the MBTI model, the recent Big Five Model attempts to understand and quantify the characteristics that make up a personality by categorizing it into five different traits; openness, conscientiousness, extraversion, agreeableness, and neuroticism [34]. These personality traits will in turn affect the affective states that an individual experiences when learning. Findings suggest that only the feelings of Boredom, Flow (Engagement) Confusion, Delight, Surprise and Frustration have a significant impact on learning. These affective states can be situated on the Russell's (2003) Core Affect framework which is composed of two integrated components: 'Valence' (pleasure to displeasure) and 'Arousal' (activation to deactivation). The affective states are dynamic and it is possible for individuals to transition from flow to confusion and ultimately to boredom [35].

Technology Acceptance and the Value of Numbers

The primary framework for the paper was the technology acceptance model (TAM) as designed by Davis (1986) [36]. It has been validated by multiple researchers and is widely utilized [37, 38]. The TAM is based on the theory of reasoned action and consists of design features which in turn affect perceived usefulness and perceived ease of use. This in turn leads to an attitude towards using which then leads to actual system use [36]. 'Perceived usefulness' is defined as "*... the degree to which a person believes that using a particular system would enhance his or her job performance*" [39] and 'perceived ease of use' is defined as "*... the degree to which a person believes that using a particular system would be free of effort*" [39].

To gain further understanding for the acceptance process the authors also utilized innovation resistance research [40, 41]. Innovation resistance can be a result of a disruption of established routines or a conflict with the individual's belief structure and can result in inertia or active resistance; increasing the time of adoption. It can either be of a functional or psychological nature. Functional innovation resistance is because of changes in ways of working (pervasiveness), time until benefit (realization), risk related (perceived risk) and problems of communicating the benefits to the user (communicability). Psychological innovation resistance is because of a conflict with image or tradition. Multiple ways exist to reduce innovation resistance if it is encountered. If the encountered resistance is of a functional nature one can try to modify the innovation according to preferences (amenability) or a trial in stages (divisibility). If the encountered resistance is of a psychological nature one can attempt to use change agents or pay closer attention to traditions [40, 41].

Finally, to further understand the value of numbers in regard to the social IS the authors primarily rely on Normann & Ramirez [42], who discuss the topic of value constellations and dense offerings. Dense is defined as "*... a measure of the amount of information, knowledge, and other resources that an economic actor has at hand at any moment in time to leverage his or her own value creation.*" [42]. This results in that value is created in constellations, individual offerings and the systems are

interlinked as well as that the key to creating value is to co-produce value by mobilizing the users.

4. EMPIRICS & ANALYTICS

A Technology Acceptance Model for Social IS

A key result of the conducted research was a conceptual model in regard to technology acceptance (see figure 1). The model aims to explain how technology acceptance affect the social learning experience and to provide a foundation for better understanding how one can implement a social IS. This model will soon in this paper be expanded upon by the identification of the main variables as well as strategies to affect them.

The conceptual model consists of three layers. The first layer is a continuous process between technology acceptance, the experience and external variables. The second layer is that of innovation resistance which can affect the first layer. The third layer is strategy and implementation which affect the first two layers. This section will now explain each layer more in detail as well as present empirical and theoretical support. Please notice that for an even more thorough explanation and validation, of this section as well as subsequent sections, please see Jarméus & Sundberg [21].

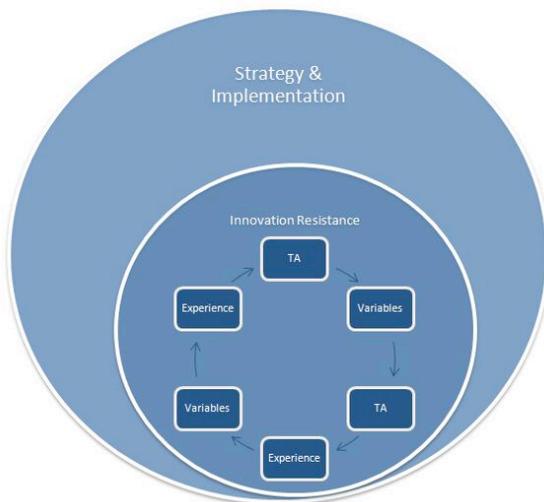


Figure 1. The conceptual model (TA stands for technology acceptance) [21].

The first layer builds upon three understandings/insights. Firstly, the external variables and the experience are interrelated. This was noticed in the pre-study and during the focus group. It can also be seen through theory and models, by for example noticing the classification in the experience economy [22] were certain types of activities end up under different experience classifications. Secondly, the more people that properly utilize a social IS, assuming the system is designed to be able to handle it, the more likely one is to achieve value. This was found both during the interviews, the focus group and can also be seen in the literature. For example, the theory of value constellations [42] would result in that it is critical to have all parties being active and that each offering provided on the platform affects the entire system. Finally, in contrast to the TAM, the process is not linear but continuous. Due to the interrelation between experience and external variables as well as the increasing value through numbers the acceptance process

becomes a continuous cycle. Each actor's acceptance decision of the system, due to its social nature, will affect the variables and experience and thereby further acceptance by other actors due to the increased system value. This results, in a continuous process that can either propel itself towards more acceptance and a better experience or vice versa. Significant empirical support for the above scenario was found in the interviews as well as in course observations and the focus group. It can also further be supported by the theory of Experiential Learning which describes learning as a process [31] and according to Russel Core's framework a learner can go from an active to a deactivated state [35]. The result is the first layer of the conceptual model. In this layer the acceptance, experience and external variables interact with each other in a continuous process. In other words, acceptance is affected by the experience and the external variables, but also in turn affects them.

Beyond the discovery of the continuous acceptance process, multiple accounts of innovation resistance were also found in the empirical data. It appears as if a social IS can be seen as an innovation and face associated resistance. Due to the limited ability of the TAM to describe these features well another layer was added to the conceptual model as the second layer. This also demonstrates how innovation resistance appears to affect the acceptance, external variables and the experience.

Finally, to clearly mark the importance of strategy and the implementation in regard to the social IS it became the third and final layer of the model. It became evident both through the empirical material and the authors' course platform implementation experience that the strategy and implementation is critical to assure acceptance and a good learning experience. This was further supported through multiple interviews and the focus group.

The Acceptance Variables

Analyzing the empirical data, 13 variables affecting technology acceptance could be identified. The categorization and identification of the variables utilized the TAM and the previously outlined conceptual model as a framework as well as drawing inspiration from the theories within chapter three. The section will begin by looking at 'Perceived usefulness' which covers eight variables. When implementing a social IS it is important to find what activities have a natural 'Level of Fit' and so can easily be transferred to the social IS, e.g. instead of e-mailing sales reports one can blog about them. However, once the social IS implemented user interaction needs to occur, but also pass a certain limit as otherwise the full value of the social IS is not demonstrated and therefore it is critical to pass this 'Value Threshold' phase. In order to do so 'Feedback & Exchange' needs to happen between users, as this allows content to be generated. The 'Feedback & Exchange' is what drives users to become engaged in the social IS. In order for users to interact with each other though 'Connection Between Users' needs to be established, and it is important that people overseeing the social IS take an active role ensuring that this happens. Users willingness to engage with the social IS is strongly predicated by their 'Readiness Levels' which is strongly believed to be a result of their age. What in turn might affect users to engage in the social IS is the 'Image of Social Media' as it is often associated as being a leisure activity. This association hinders users from seeing the potential of using a social IS. However, once users get over this association and start using the social IS, it is important that it has the 'Capability

for Ground Level Information'. This is the ability of the user to generate information in the social IS that is relevant to day-to-day activities and to other users in close proximity of the user, which makes the social IS more relevant to the individual user. Finally, the social IS needs to be able to 'Adapt to User Patterns', as users might use it in unexpected ways and if the social IS is not able to accommodate this it will reduce the feeling of autonomy and subsequently users motivation to engage in it.

Furthermore, 'Perceived ease of use' covers two variables. How easy a social IS is to use is determined largely by how straightforward it is and if there are barriers to entry. This 'Level of Complexity' can be reduced by using intuitive and simple design in the social IS. Furthermore, the manner, or 'Language Formality, in which users are allowed to conduct themselves in the social IS affects how easy it is to use. For example, if users are required to be highly formal in the social IS it will become harder to use since they will have to be more considerate of their actions.

Finally, other motivational factors, associated with the nature of social media, cover three variables, and do not directly affect the social IS's usefulness or ease of use. As the social IS relies on socially constructed knowledge it is important that users have the 'Engagement to Share', and that you do not rely on the goodwill of users to share. For example, some form of recognition or reward system needs to be in place for active users. Recognition for sharing is also what influences 'Personal Visibility', which is the social IS highlighting and putting the spotlight on a user for his/ her contribution which in turn adds a competitive element to it. Having an element of competition is a good way to engage users. Example of such efforts is top contributor lists. Finally, the environment can motivate users to engage in the social IS and share. Having a 'Culture of Sharing' can create such an environment in the organization and has an indirect but powerful effect on the user's willingness to accept the social IS.

Of the three acceptance variable categories it was found that 'Perceived usefulness' was the most prominent one, as the majority of the identified acceptance variables were associated with it. Furthermore, of the 13 variables it was only found that the 'Value Threshold' was binary in nature, i.e. having a defined start and end state, with the remaining variables being more continuous in nature. This supports the argument that acceptance is a continuous process. However, it is worth noting that in the early phases of the implementation, the 'Value Threshold' appears to be the most critical variable to overcome.

The Acceptance Strategies

By further analyzing the empirical data, multiple strategies to affect the previously outlined variables were identified, belonging to three aspects: managerial, social and technical. The section will begin by looking at managerial aspect that cover three strategies, and relate to what the individuals at the higher end of the hierarchy can do to induce users to accept the social IS. 'Policies & Guidelines' are official organizational documents that recognize the social IS use as part of daily activities and provide guidance on how the system should be used. This provides the user with reassurance and guidance to use and accept the social IS. 'Top Management Support' is when top management engages in activities that motivate users to engage in the social IS, e.g. giving positive feedback to active users. This strategy is considered to be one of the most critical

ones as it has an immense impact on the user. 'Temporary Forced Participation' is, as implied, forcing the individuals to use the social IS temporarily. This gives them an idea of how the social IS works and what it can do, which in turn can makes them more likely to realize the value of using it.

The social aspect covers four strategies and is about creating a socially engaging environment where users are aided and encouraged to interact. With the introduction of the social IS it is critical to identify 'Ambassadors / Marquee Users' since they will drive the social IS in its early phase, i.e. passing 'The Value Threshold'. These users are seen as highly passionate about the social IS and will help promote and demonstrate the value of it informally to potential users around them. As mentioned previously, there tends to be different 'Readiness Levels' of potential users and having 'Focus on Digital Immigrants' is suggested as they need the most aid and encouragement to accept the social IS. Additionally, one should 'Designate Community Managers' whose responsibility is to aid users connecting to each other. Community Managers oversee the social IS and have an understanding of what type of interaction is occurring and can therefore easily pair users together. Furthermore, they act as a sort of welcoming host for new users and can provide answer for inquiry they might have. Finally, as more users start entering into the social IS one should 'Form Communities' to add structure to the interaction that is occurring. The benefit of communities is that they bring together users who have some form of common ground which helps facilitate interaction.

Lastly, the technical aspect covers seven strategies and relate more concretely to how the social IS should be designed. For users unconvinced of the social IS's value it should include an 'Eye-Opener'. Eye-openers are diagnostic tests aimed specifically at demonstrating a users' lack of knowledge and how the social IS can help to remedy this. For easy navigation a 'Search Function' should be provided as it helps users locate content and other users. However, in order to find other users they need 'Personal Profiles' that have information about the user and are searchable. Additionally, personal profiles are fundamental for the social IS being able to highlight users who are active. However, it is important for potential users to have an 'Anonymity Option' in case they feel unsure about interacting in the social IS with their personal profiles. Once users are interacting it is important that the social IS has a 'Notification System' so that users are informed when somebody is interacting with them. So far the discussion of the social IS hasn't gone into detail of the different forms of social media, and it is worth noting that there is a wide variety of them. For example, that communication in different forms of social media can either be desynchronized or synchronized allowing for different forms of interaction, makes it more likely to satisfy user preferences and learning style. Therefore, it is beneficial if the social IS works as a platform for 'Aggregates & Integrates of Social Media'. Also, since many organizations tend to have already established internal IS's it is recommended that the social IS is integrated into it, so that the users do not need to handle two IS's. Finally, the social IS can include 'Entertaining Features', such as widgets, that indirectly help persuade the user to accept them.

Although, the technical aspect covers most strategies it was found that it was to be the least important one. This is in response to the increased social nature of information systems, and that empirical data strongly supported that 'Top

Management Support' and 'Ambassadors / Marquee Users' are the most important strategies to have in place. Furthermore, a holistic approach is needed when implementing, were all three aspects are combined into an overall implementation strategy. This is because the variable related strategies feed into each other as multiple can affect single variables, the effectiveness of the overall implementation strategy is likely to be improved since the chance of reaching critical mass and starting the upwards 'spiraling' process of acceptance should increase.

5. CONCLUDING DISCUSSION

The two main insights of this paper is the continuous process that appears to exist between technology acceptance and the experience as well as the resulting importance of a holistic view on the implementation strategy. Technology acceptance, the experience and external variables affect each other. This results in a continuous process that can either "spiral" upwards or downwards. The variables in this process seem to primarily belong to three categories: perceived usefulness, perceived ease of use and the nature of social media. The variables in turn give rise to possible strategies belonging to three different aspects: managerial, social and technological. The strategies can then be combined into an overall implementation strategy, which affects the identified variables and through this acceptance the learning experience as well.

Furthermore, during the research there were some particular insights that the authors believe to be important from a management perspective. Firstly, when designing a social IS one should take inspiration from current social media solutions, since they often are designed with ease of use in mind. Secondly, it is critical to allow for proper time of acceptance since it will take multiple "cycles" of acceptance before the social IS reaches critical mass. Thirdly, it is also critical to provide proper top management support to assure that the implementation is successful. Fourthly, one has to make sure that the organization has the correct policies and guidelines to facilitate the social IS. Finally, the authors can see the possibility of a third party working as an experienced change agent since implementing the social IS can result in change management related issues.

Some practical advice on how to implement a social IS is to use an informal grassroots approach. Begin by identifying ambassadors and introduce the social IS to them. Through their usage, they will in turn informally promote the social IS to their surrounding colleagues. Personal recommendation is seen as one of the most powerful ways of persuading users to join. When the time comes to formally introduce the social IS to the overall user base, make sure that the ambassadors have generated enough content on the social IS, i.e. pass the value threshold, so that hesitant users can easily see the value of it, and therefore more likely accept it. Also, as previously stated, ensure that top management is involved throughout the whole implementation process, to provide support and encouragement to users. Also, make sure that expectations of the social IS are handled, as it usually takes around six months before the true value of the social IS is realized and it becomes self-sustaining.

Beyond the core findings of the paper, the paper also manages to explore both the usefulness and limited nature of the TAM in relation to social IS. The TAM's core constructs were supported by both the qualitative and quantitative data and as a framework the model proved highly useful. However, its linear nature and

disregard for social interrelations in a system is a problem that needs to be solved through future research. The authors further believe that the findings within the paper are a welcome addition since much of the previous E-learning research has partly or fully ignored the social dimensions. This is likely due to many studies not belonging to the currently rising third generation of teaching pedagogy. Furthermore, the paper has less of linear focus than what appears common in technology acceptance research and also appears to focus more on strategy related issues. The authors would thereby like to make three recommendations for further research. Firstly, there is a clear need for further research in relation to technology acceptance processes, especially if they are linear or continuous. Secondly, there is a need for more research in general in relation to E-learning 2.0. Finally, a better understanding for how value constellations affects and are affected by the rise of social media and E-learning 2.0 is likely to be increasingly relevant as the world becomes ever more connected and more E-learning 2.0 solutions get implemented.

6. FINAL REMARKS

The reviewed literature on learning comes from both the organizational field and the higher educational learning. A more thorough focus on organizational learning theories could further enhance issues that matter within an organization such as: innovation, creativity, problem-solving and knowledge creation at large.

Viewing Social Media as tools that could enable or further enhance learning within an organization could be a challenging task that is worth investigating. The organizational development and the emerging new corporate culture position the Social Media as well as the individuals' quality of sharing (knowledge and experiences) at the epicentre.

The implementation of Social Media or the use of existing Social Media with focus on Organizational Learning and Organizational Knowledge Creation as well as the technology acceptance process could be further tested.

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