INTRINSIC MOTIVATION INVENTORY APPLIED IN THE CONTEXT OF ERP ADOPTION – CASE OF AN HIGHER EDUCATION INSTITUTION

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Abstract

Intrinsic Motivation Inventory (IMI) is a multidimensional instrument originated from Self Determination Theory (SDT). It is used for the assessment of the subjective experiences of participants in a specific context as determinants of intrinsic motivation. The aim of this study is to assess the distinctive features of IMI among Enterprise Resource Planning users in a higher education institution (HEIs) through adaptation of original IMI instrument. The results of the study presented in the tabular and graphical form furnish that in general, majority of ERP users have positive attitude towards ERP usage and adoption. As this research is conducted at the early post implementation stage there might be further improvement in users' attitude towards ERP usage is expected in later stages. The results give momentum to longitudinal investigation in order to understand different variables which may affect users' performance over the time. This will further help in devising suitable strategies for augmenting users' motivation to use ERP in order to improve the effectiveness of post-implementation ERP usage.

Keywords: ERP Usage, Intrinsic motivation, self-determination theory, contextualization, users' performance

1. INTRODUCTION

ERP systems are defined as "comprehensive commercial software packages with embedded industry best practices business process" (Bala & Venkatesh, 2013). Implementation of ERP systems can be effectively executed if the organizational structure is modified to be compatible with the requirements of ERP systems(Volkoff, Strong, & Elmes, 2007). Besides, ERP systems require up-gradation of human skills to be able to use ERP(Alvarez, 2008)(Sun, Bhattacherjee, & Ma, 2009). Therefore, at the pre-implementation stage, administration faces challenges of user resistance and organizational change management (Al-Shamlan & Al-Mudimigh, 2011). A failure in responding to these challenges is likely to result in under-performance, reduced job satisfaction and high turnover(Bala & Venkatesh, 2013).

Universities are taking interest in ERP implementation due to the global pressure for high performance management (De Castro Silva & De Oliveira, 2015) The usage of ERP for academic purposes defines a different context for the evaluation of ERP benefits in HEIs(Abugabah & Sanzogni, 2010). However,

irrespective of the context the right strategy for ERP implementation(Seo, 2013) and its monitoring and evaluation is equally applicable to all ERP deploying firms.

ERP systems are characterized as stress inducing software for users (Tarafdar, Tu, & Ragu-Nathan, 2011) which might vary as per the characteristics of the users. Generally, IT is considered a source of techno-stress because of "techno-overload, techno-invasion, techno-complexity", and "techno-insecurity" (Tarafdar et al., 2011). Users can react to these stressors emotionally and psychologically(Tarafdar et al., 2011). These stressors might affect the users' energy and their satisfaction level which leads to depression (Maier, 2015).These behavioral changes can further impact employee 'performance and productivity' (Maier, 2015).

As a methodological approach to manage these stressors, organizations need to identify and manage them very effectively through suitable change management strategies; the ERP change management models introduced so far demonstrate the mechanisms based on an extensive research on IT change literature. A study presented a model of ten mechanisms which motivate users to accept change entailed by ERP adoption(Yi & Hwang, 2003). A number of studies have introduced different models of successful ERP implementation which is rooted in the change management philosophy(Altamony, Tarhini, Al-Salti, Gharaibeh, & Elyas, 2016). A study by Deloitte conducted in 2005 is referred for its assessment of change management success factors which contribute successful ERP implementation(Altamony et al., 2016). It found the "support of project leadership, deployment activities and end user training" to be three most important factors for effective ERP implementation.

Adopting change management strategies for ERP implementation is found to be beneficial for ERP adopting organizations (Altamony et al., 2016). It is important for organization to collect and use perceptive data to analyze how these techno stressors affect user behavior (Riedl, Kindermann, Auinger, & Javor, 2013)so that they can adopt suitable ERP adoption strategies or modify the current practices.

The characteristics of technology are categorized around usefulness, velocity (of change), complexity and reliability(Maier, 2015). ERP with its idiosyncratic characteristics is considered to be a source of positive influence on users' performance (Ramakrishna Ayyagari, 1809) as well as a source of stress for users (Weinert, Maier, Laumer, & Weitzel, 2014). Users need to be competent and skillful for operating ERP (Alvarez, 2008).The learning needs for using complex software like ERP might be frustrating for users (Boudreau & Robey, 2005). If ERP system is perceived to be useful and promising to increase users' potential to perform better and reduce their workload, it can change users' perceptions about its stress inducing nature. However, it requires organization to adopt effective change management factors as most important critical success factor for a well prepared ERP pre-implementation plan which can effectuate this technological transition smoothly(Masa'deh & Altamony, 2012).

This study focuses on user's intrinsic motivation for using Enterprise Resource Planning System in the context of HEIs for two major reasons. First, ERP provides a broad spectrum of features for users to explore and interact. Users are required to expend significant cognitive efforts to face and overcome the knowledge barriers for the successful adoption of this system. Secondly, for increasing revenues, organizations require users to proactively explore systems in order to get maximum benefit to support their operational tasks. Thus, this study aims to examine the extent to which the users are intrinsically motivated to use the ERP System successfully. It will ensure users' support for effective ERP adoption across its life cycle – acquisition to early post implementation assimilation – as one important critical success factor (Liu, Feng, Hu, & Huang, 2011). In the context of HEIs, this study will reflect how far evaluating and managing IMI can help secure the "last mover advantage" as a pre-step to manage ERP failure risks (Seo, 2013).

This paper is comprised of six sections. The first one is the introduction that explains the predicament and the objective of this study. The second section describes the ERP systems, intrinsic motivation and theoretical background of IMI. The third section presents the method of study. Fourth section presents results and their interpretation which is followed by two final sections of discussion, conclusion and suggestion for future studies.

2. LITERATURE REVIEW

2.1. Enterprise Resource Planning Systems

Enterprise systems are considered to be large systems which involves different types of stakeholders in the organization (Akkermans & Van Helden, 2002). Enterprise systems are attracting attention of both researchers and practitioners as these systems are essential to enhance the productivity of organizations and individual users (Y. Hwang, 2012). Although the direct impact of enterprise systems on firm's performance has been debated in IS community since long, however, the importance of system for end

users is consistently emphasized for successful adoption and implementation of the enterprise systems(Davison, 2002). Keeping in view the complexity of implementation of enterprise systems compatible with the regime of globalization involving Asia (Martinsons, 2004) and Europe (Y. Hwang, 2012), the adoption of these systems becomes a critical issue for international communities.

2.2. Employee's Intrinsic Motivation for Enterprise Systems Usage

In today's swiftly growing corporate environment, firms intend to maximize the potential of their employees to stay far ahead of the severe competition and continue their survival in the fierce quest (Mgedezi, Toga, & Mjoli, 2014). Loyal and well-motivated human resource feels that organization give them value and they are playing a vital role in their organization which eventually enhance both employees' as well as organizational performance (Fossey & Harvey, 2010). Committed and motivated employees are considered as an important asset for an organization and keeping the employee commitment, motivation and job involvement up is always considered rewarding to a business (Fossey & Harvey, 2010). An organization that acknowledges and appreciates employees performance, ensures that its human resource feel that their capabilities are of high standard, thus focus on encouraging employees high involvement and motivation (Brown & Cregan, 2008).

2.3. Theoretical Background

There are number of theories that intend to explain human motivation. One well recognized theory,(Deci & Ryan, 1985)(Deci & Ryan, 2000) - Self Determination theory (SDT), distinguishes between intrinsic motivation which "refers to doing something because it is inherently interesting or enjoyable" and extrinsic motivation, which "refers to doing something because it leads to separable outcome" (Deci & Ryan, 2000). One stream of Information Systems (IS) research has used motivation theory to investigate the factors that influence acceptance for technology (Fagan, Neill, & Wooldridge, 2008).

Much of the work has been conducted with extrinsic motivation that explores the instrumental outcomes which influence the performance from outside of an activity (F.D. Davis, 1989). Some researchers have focused mainly on the role of intrinsic motivation, which involves conducting an activity because of its challenging or enjoyable nature (G.-J. Hwang, Wu, & Chen, 2012). However, researchers have called for further work with intrinsic motivation in context of IT acceptance and usage (Fagan et al., 2008).

Motivation energizes and mobilizes an employee's efforts and determination in performing any assigned task (Abuhamdeh & Csikszentmihalyi, 2009)(Amabile, Hill, Hennessey, & Tighe, 1994). Previous research on IS has endorsed the significance of motivation in the implementation of Information Systems (Bock, Zmud, Kim, Lee, & Lee, 2016). Motivation behind using Information Systems has been examined through two broad lenses: extrinsic motivation (perceived usefulness) and intrinsic motivation (Venkatesh, 2000). According to some studies intrinsic motivation is a stronger determinant of intention to use than the extrinsic motivation (Fred D. Davis, Bagozzi, & Warshaw, 1992). It is also argued that the implicit perspective of IS implementation should be controlled and managed mainly by intrinsic motivation (perceived enjoyment) or self control, rather than by formal controls mechanism based on self-determination theory (Malhotra & Galletta, 2003).

Perceived enjoyment usually refers to the extent to which the action of using information systems is perceived to be pleasurable in its own right and aside from any instrumental importance of the technology (Fred D. Davis et al., 1992)(Yi & Hwang, 2003). Another study found a positive and strong relationship between intrinsic motivation, computer playfulness and perceived ease of use (Hackbarth, Grover, & Yi, 2003). Prior research based on theory of reasoned action also proposed intrinsic motivation or perceived enjoyment, as a determinant of intention to use and perceived ease of use(Hackbarth et al., 2003)(Viswanath Venkatesh , Michael G . Morris , Gordon B . Davis, Venkatesh, Morris, Davis, & Davis, 2003).

Arising from the aspiration to achieve objectives that are distant from routine work, extrinsic motivation is often seems to be short-lived and could cease once intrinsic motivation is encouraged (Frates, Moore, Lopez, & McMahon, 2011). Intrinsic motivation is a psychological energy arising from personal attitude or enjoyment or the realized value of work (Deci & Ryan, 2000). In contrast with extrinsic motivation, intrinsic motivation survives within an individual and is related with a behavior that is internally compelled and is likely to be sustainable (Deci & Ryan, 1985).

The Intrinsic Motivation Inventory (IMI) is a multidimensional measurement instrument which is used to assess users' subjective experience of a target activity (De Lourdes Mata, Monteiro, & Peixoto, 2012). It has been used in several studies related self-regulation and intrinsic motivation (Ryan, Koestner, & Deci, 1991).

The instrument assesses users' perceived competence, enjoyment/interest, effort, usefulness/value, felt pressure and tension, and perceived choice while performing an assigned task, hence yielding six subscale scores.

3. METHODOLOGY

The sample of participants included administrative staff and faculty working as program advisors. This sample represented major users of ERP. They used ERP system frequently during working day. It was responded by users of all departments of the organization under study.

3.1. Instrument

The Intrinsic Motivation Inventory is an instrument that aims to measure motivation of subjects under study in a broad array of situations and contexts and is rooted in Self Determination Theory (Deci & Ryan, 1985). Originally, IMI with its 'multidimensional structure' has been organized in seven subscales directed towards assessing motivation for related tasks. Authors of IMI have suggested that, according to the situation, IMI can be adapted to different contexts by either removing certain items which seem repetitive or can be modified and adjusted according to the activity to be investigated (SDT, n.d.).

This study has adapted six sub-scales Interest/Enjoyment, Perceived Competence, Effort/ importance, Perceived Choice, Value/Usefulness and Pressure/ Tension. Relatedness items are omitted as it is not the requirement of the study (Monteiro, Mata, & Peixoto, 2015). A dimension of general perceptions with four items is added to IMI instrument to contextualize it for ERP adoption. The IMI was modified with eighteen items distributed over six subscales each with three items: Interest/Enjoyment, Perceived Competence, Effort/ importance, Perceived Choice, Value/Usefulness and Pressure/ Tension. All items in the subscales with negative structure were reversed while entering data.

A survey methodology was used to gather data. A questionnaire was modified from IMI in order to evaluate users' motivation as an indicator of their attitude towards ERP usage. This study was conducted after getting approval of the dean office in the form of written consent to conduct this research. The data was collected from employees using ERP in the organization under study through on line survey.

4. RESULTS INTERPRETATION

Table 1: Employees' general perceptions about ERP implementation process

N	Item General	Score 1	2	3	4	5	6	7	Median	St. D
1	I am aware of the purpose behind implementation of the new ERP system	3 (6.7)	0 (0)	4 (8.9)	8 (17.8)	10 (22.2)	12 (26.7)	8 (17.8)	5	1.62369
2	I am aware of the benefits of the new system (ERP) compared to the previous one	6 (13.3)	1 (2.2)	7 (15.6)	4 (8.9)	10 (22.2)	8 (17.8)	9 (20.0)	5	1.98275
3	I am satisfied with the training provided for working with the new system	10 (22.2)	6 (13.3)	8 (17.8)	6 (13.3)	9 (20.0)	3 (6.7)	3 (6.7)	3	1.87676
4	I was aware of the decision of the implementation of the ERP system beforehand.	8 (17.8)	8 (17.8)	9 (20.0)	5 (11.1)	6 (13.3)	2 (4.4)	7 (15.6)	3	2.03827

Graph1a: General Perceptions
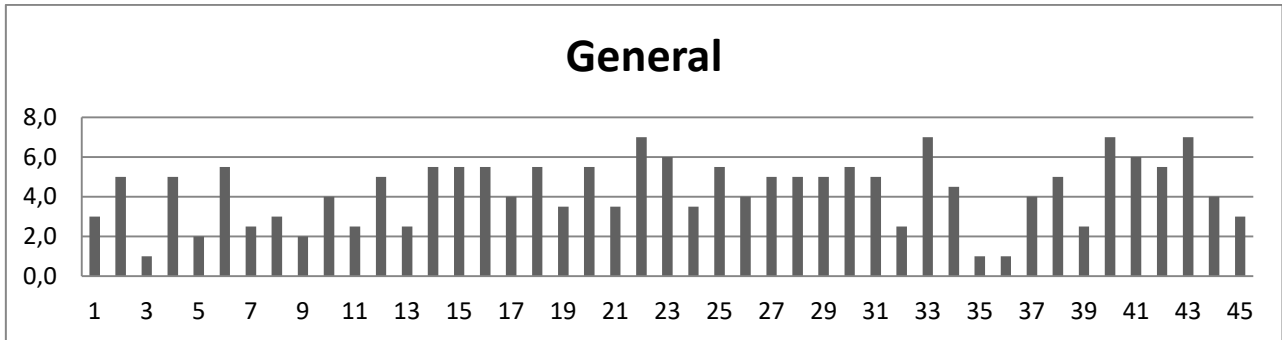
General

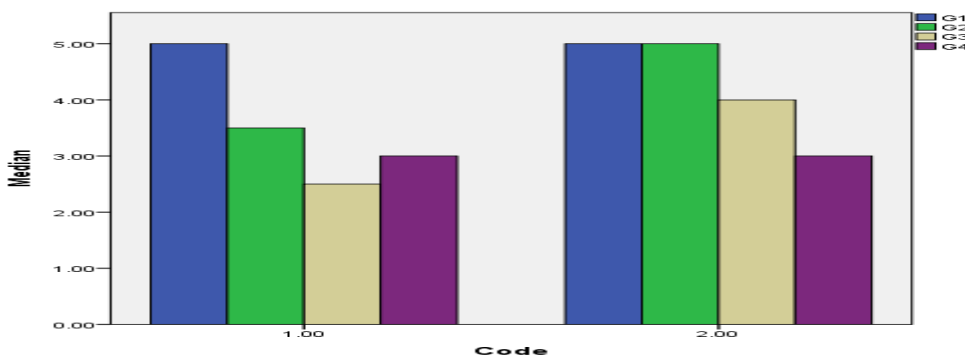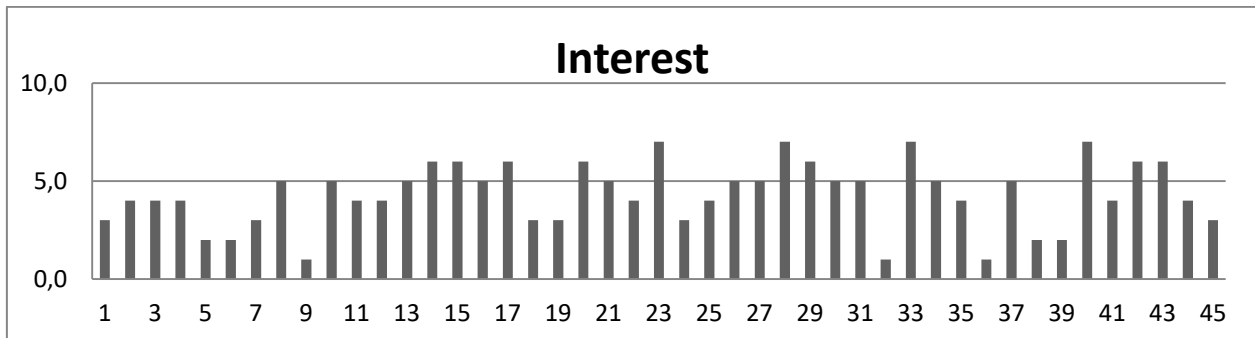## Graph 1b: General (Comparative response of participants in median values)

Table 1 describes the general perception of ERP users about the ERP implementation in higher education institute. The highest median score for this section is 5 for statement 1 and 2. The response percentages for first statement: "I am aware of the purpose behind implementation of the new ERP system"; 17.8 % respondents believe it to be "very true"; 26.7% believe it to be "true". Second statement with highest median 5 is: "I am aware of the benefits of the new system (ERP) compared to the previous one". Majority of users is aware of the benefits of ERP for organizations as the positive response "very true" is given by 20% respondents while 17.8% respondents checked it as "true". The notable negative response is reported for satisfaction with training provided to work with the new system in third statement: "I am satisfied with the training provided for working with the new system"; 22.2% marked it "Not at all true" while only 13.3 % believed it to be "very true" and 20 % report it to be "somewhat true". Moreover, respondents disagree with the statement that they were aware of the decision of the implementation of ERP beforehand; 17.8 % marked it as "not at all true", 17.8% report it as "not true' and it is believed to be "true" only by 15.6% respondents. Over all the perceptions of the respondents are not highly variant from median values except for the awareness of decision of ERP adoption.

The comparative graph for this section shows that administrative staff has more positive general perceptions than that of faculty with the exception of awareness of the purpose of ERP implementation.

Table 2: User Interest in ERP

N	Item	Score							Median	St. D
	Interest	1	2	3	4	5	6	7		
1	I believe that the new ERP system is very interesting to use.	4 (8.9)	2 (4.4)	2 (4.4)	11 (24.4)	11 (24.4)	9 (20.0)	6 (13.3)	5	1.7
2	I enjoy using the ERP system for my work.	2 (4.4)	7 (15.6)	5 (11.1)	11 (24.4.)	9 (20.0)	7 (15.6)	4 (8.9)	4	1.6
3	I think using the ERP system is very boring.	11 (24.4)	10 (22.2)	7 (15.6)	10 (22.2)	2 (4.4)	3 (6.7)	2 (4.4)	3	1.7

Graph 2a: Interest (individual response of participants)

Graph 2b: Interest (Comparative response of participants in median values)
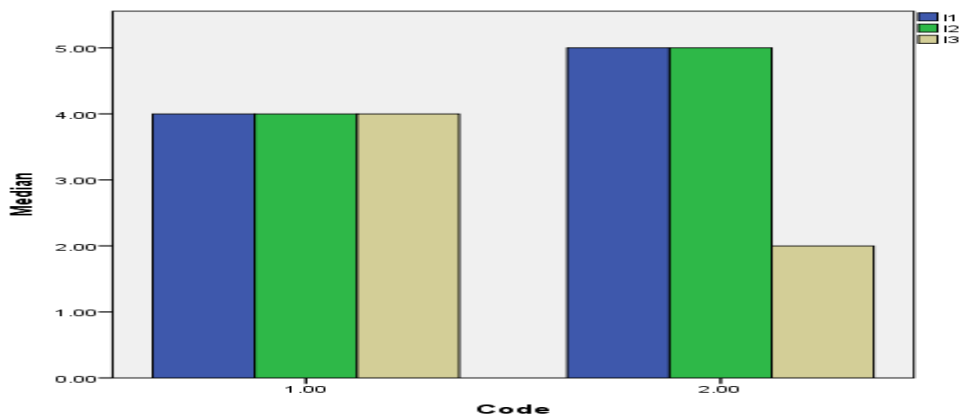

Table 2 described the perceptions of ERP users about their interest in using ERP. The highest score for this section was secured by the statement "I believe that the new ERP system is very interesting to use" with response rate 24.4 %as "somewhat true". The neutral option was marked by24.4%, 20 % as "true and 13.3% as "very true". "I enjoy using the ERP system for my work" was checked as "not very true" by 8.9% only, "not true" by 15.6% and "neutral" by 24.4% respondents.

In response to the reverse statement describing ERP usage as a boring activity, 24.4 % responses were "not at all true" and 22. 2 % "not true". With 22.2 % neutral responses the negative response side secured negligible response percentage.

This section on interest can be summarized as positively skewed. The comparative graph shows higher positive perceptions among the administrative staff than faculty except for the statement finding ERP very boring which implies that they find it more interesting as compared to faculty members.

Table 3: Perceived Competence

	Perceived competence	1	2	3	4	5	6	7	Median	St. D
1	I think I have become pretty good at using the new ERP system.	3 (6.7)	2 (4.4)	4 (8.9)	11 (24.4)	12 (26.7)	9 (20.0)	4 (8.9)	5	1.5
2	After working on the system for a while, I think I have become pretty competent at using it for my daily tasks.	2 (4.4)	3 (6.7)	5 (11.1)	11 (24.4)	12 (26.7)	8 (17.8)	4 (8.9)	5	1.5
3	I am not very skilled at using the new system.	11 (24.4)	6 (13.3)	6 (13.3)	6 (13.3)	10 (22.2)	4 (8.9)	2 (4.4)	3	1.8

Graph 3a: Perceived Competence (Individual response)
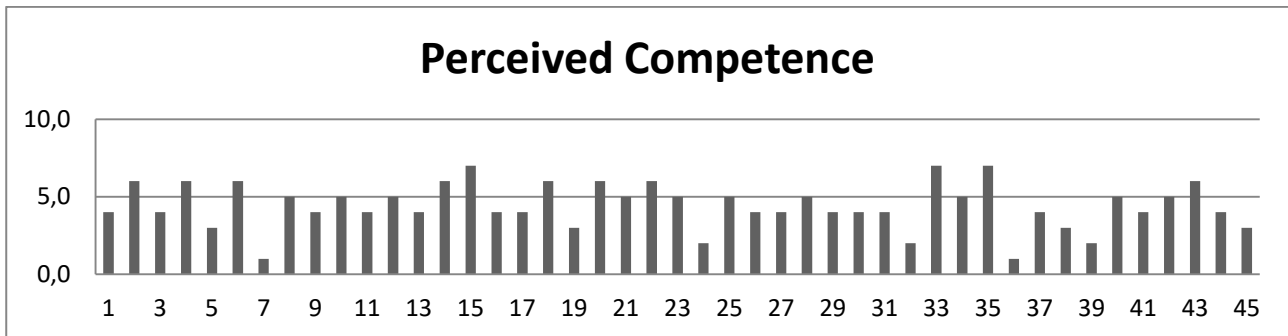
Graph 3b: Perceived Competence (Comparative response of participants in median values)
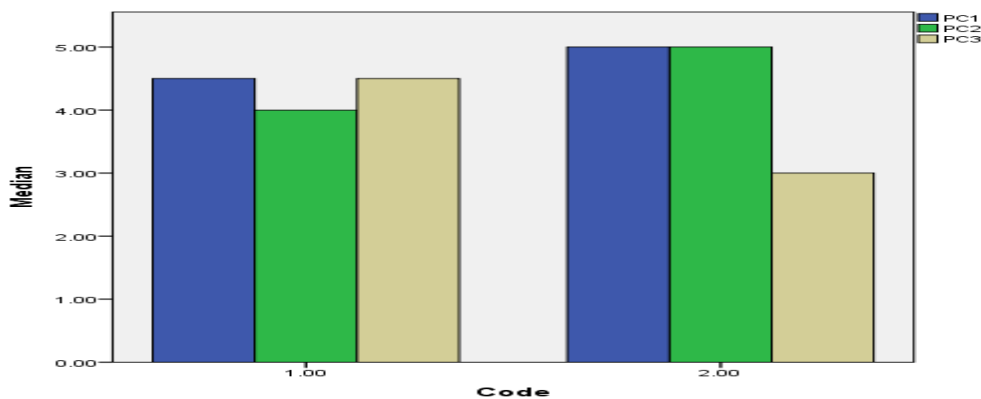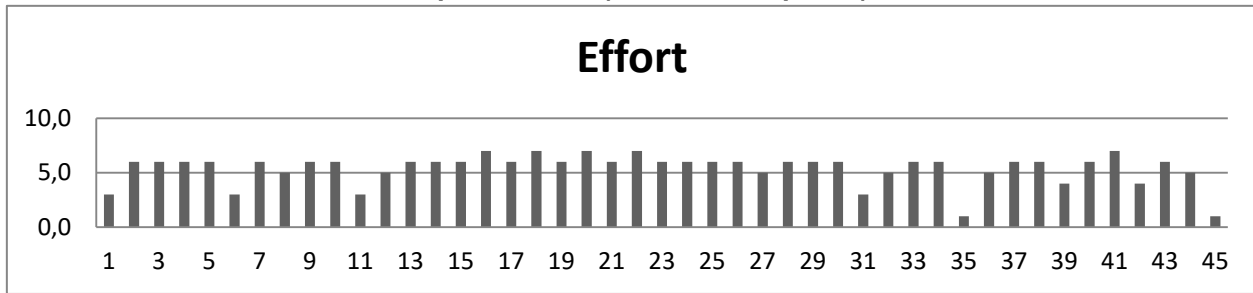

Table 3 describes the construct of perceived competence. Respondents who believed thattheir becoming good at using ERP is "true" are 20% and 8.9 % reported it to be "very true". Respondents who believe that they have become pretty competent after using ERP for a while and checked "very true" are 8.9% and response rate for this statement to be "true" is 17.8%; 26.7% report it as "somewhat true" and 24% is neutral response. However, the response to the reverse statement "I am not very skilled at using the new system" is 24.4% for "not at all true" , 13.3 % for "not true" and 13.4% somewhat not true", which shows respondents' disagreement to not being very skilled at using the new ERP system.

This section also presents positively responses from majority of participants. It seems that they have become competent in using ERP after some hands on experience with this tool. It is interesting to note from comparative graph of mean values that response of administrative staff is more positive for all the three statements. The faculty has shown a disagreement that they have become very skilled at using ERP.

Table 4: Effort / Importance

Effort / Importance		Score							Median	St Dev
		1	2	3	4	5	6	7		
1	It is not important for me to learn using the new system.	27 (60)	4 (8.9)	4 (8.9)	3 (6.7)	2 (4.4)	3 (6.7)	2 (4.4)	1	1.8
2	It is very helpful for my job to learn using the new system.	1 (2.2)	1 2.2)	2 (4.4)	1 (2.2)	4 (8.9)	10 (22.2)	26 (57.8)	7	1.4
3	I put a lot of effort to learn and use the system	2 (4.4)	1 (2.2)	3 (6.7)	6 (13.3)	13 (28.9)	15 (33.3)	5 (11.1)	5	1.4

Graph 4a: Effort (individual response)

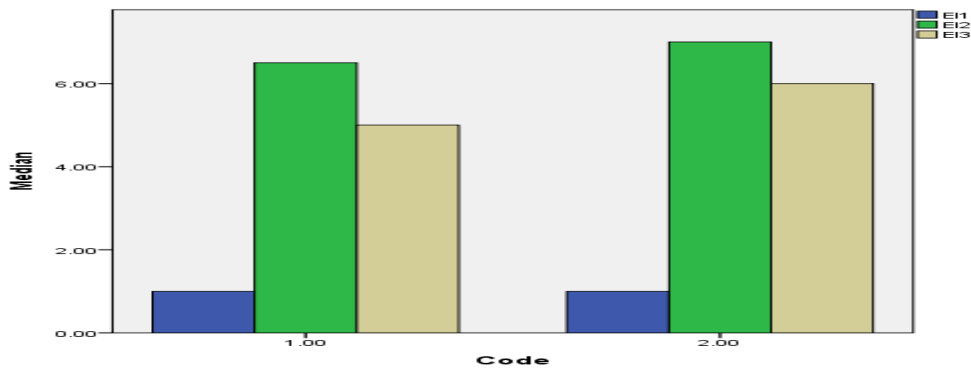**Graph 4a: Effort (Comparative response of participants in median values)**

Table 4 describes the construct of Effort/ Importance. The first statement secured highest percentage (60%) for "not at all true" which indicate that respondents strongly believe that learning to use ERP is important for them.

It is supported by the high response of for "very true and true" scores – 57.8% and 22.2% respectively, showing users' belief about the usefulness of learning to use ERP. Overall 88.9 % respondents believed that it is useful to learn using ERP. The third statement has highest agreement on the effort required to learn ERP – 33.3 % marked it as "true", 11% marked it as "very true and 28.9 % as "somewhat true". The cumulative agreement for this statement is 73.3%.

The given data shows that majority of users strongly believes that ERP usage is important and useful for their job tasks. However, they believe that learning how to use ERP requires a good lot of effort to become a competent user of this complex system.

The graphs drawn against two categories of participants show a slightly more positive response from administrative staff for all the three statement of importance of ERP usage, its learning and the need to try hard to learn ERP accordingly.

Table 5: Perceived Choice

	Perceived Choice	1	2	3	4	5	6	7		
1	I felt like it was not my own choice to work on the ERP system.	4 (8.9)	7 (15.6)	8 (17.8)	8 (17.8)	8 (17.8)	4 (8.9)	6 (13.3)	5	1.8
2	I am working on the ERP system because I want to.	4 (8.9)	5 (11.1)	6 (13.3)	7 (15.6)	10 (22.2)	8 (17.8)	5 (11.1)	4	1.8
3	I am working on the ERP system because I have to.	2 (4.4)	2 (4.4)	2 (4.4)	6 (13.3)	9 (20.0)	10 (22.2)	14 (31.1)	6	1.6

Graph 5a: Perceived Choice (Individual responses)
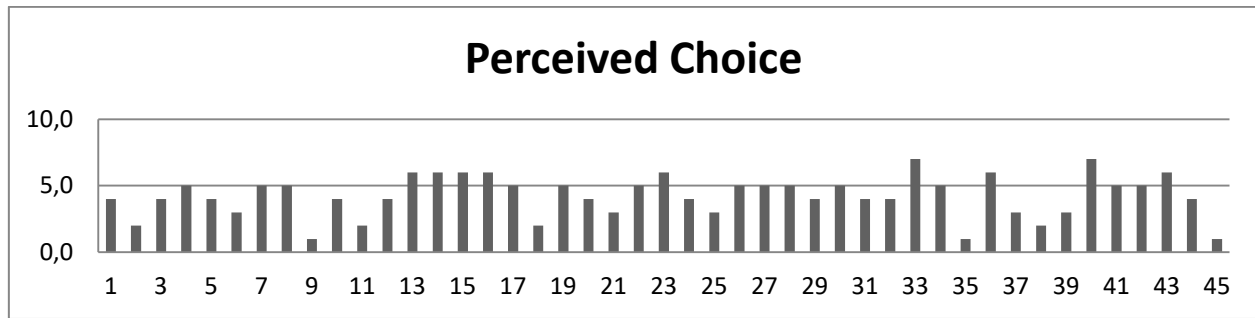
Graph 5b: Perceived Choice (Comparative response of participants in mean values)
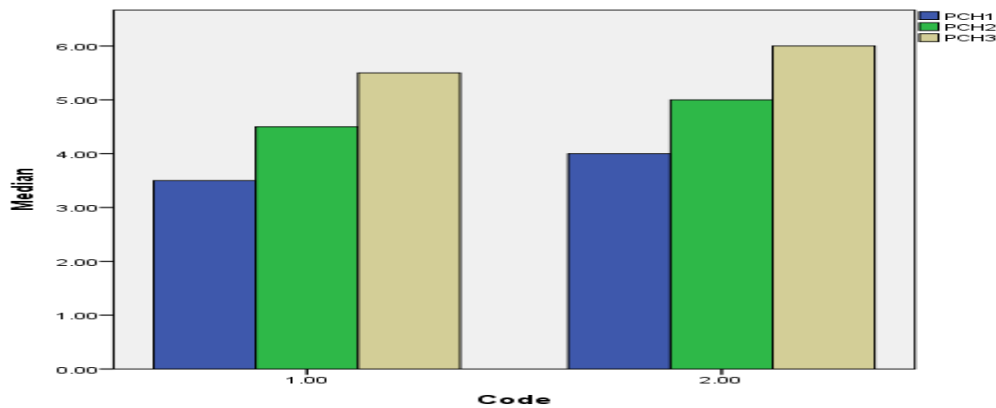

Table 5 describes employees' perceptions about the choice of using ERP. The highest median score was calculated for third statement "I am working on the ERP system because I have to work to"; 31% marked it to be "very true", 22.2 % marked it as "true" and 20 % as "somewhat" true. The second highest median is ascribed to second statement "I am working on the ERP system because I want to"; the "very true" score is marked only by 11.1%, while 17.8% marked it as "true" and 22.2% checked it as "somewhat true". The first statement was reverse: "I felt like it was not my own choice" was marked as "very true" only by 13.3% and true" by 8.9%. The median score for this statement is 4. Contrarily, 8.9% checked it as "not at all true" and 16.6% as "true" respectively while the percentage for "somewhat true, neutral and somewhat not true" are 17.8% each.

It shows that the respondents have highly divergent or uncertain perceptions about first two statements. It is reinforced by the results of third statement.

It is interesting to note that at the early post implementation stage, despite knowing the benefits of ERP usage and its importance, users still find it a compulsion to use it and not a choice.

Table 6: Value usefulness

	Value usefulness								
1	I believe that ERP system is very useful for my work at the University	1 (2.2)	0 (0)	2 (4.4)	7 15.6)	8 (17.8)	14 (31.1)	13 (28.9)	6	1.3
2	I believe that ERP system is beneficial for my personal and professional growth	2 (4.4)	2 (4.4)	2 (4.4)	7 (15.6)	6 (13.3)	13 (28.9)	13 (28.9)	6	1.6
3	Working with the new system does not really have any value for me.	17 (37.1)	12 (26.7)	5 (11.1)	4 (8.9)	2 (4.4)	3 (6.7)	2 (4.4)	2	1.7

Graph 6a: Value/ Usefulness (Individual responses)
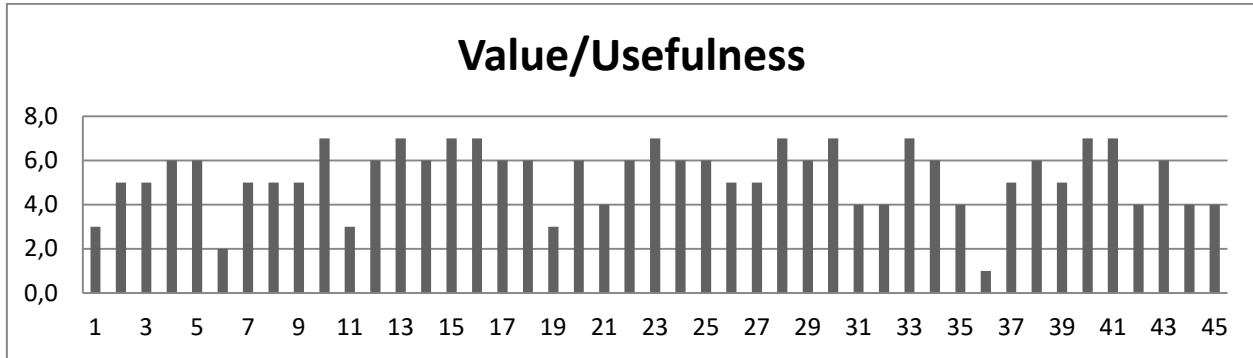
Graph 6b: Value/usefulness (Comparative response of participants in median values)
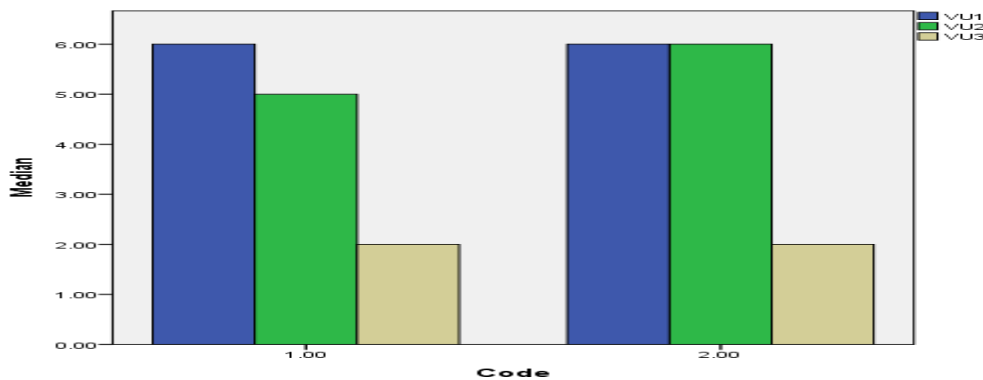

Table 6 describes the construct of value usefulness. The first statements – "I believe that ERP system is very useful for my work"- secured highest median score 6; "very true" score was marked by 28.9% and "true" was marked by 31.1% respondents. The second highest median score is allocated to statement" I believe that ERP system is beneficial for my personal and professional growth"; 28 .9% respondents checked "very true" while 28.9% checked "true" for this statement. The lowest median score came out to be for third statement which is reverse: "Working with the new system does not really have any value for me" where two important scores of "very true" and "true" were marked by only 4.4% and 6.7 % respondents respectively. It implies that majority of users believe in the professional value of ERP – usefulness and beneficial for personal and professional growth.

Comparing the responses of the two groups of ERP users, the response of administrative staff is more positive than that of the faculty. It indicates that they more strongly believe in the usefulness and beneficial impact of ERP on their personal and professional growth.

Table7: Pressure/ Tension

	Pressure/ Tension								
1	I feel anxious while working on the new system	5 (11.1)	8 (17.8)	10 (22.2)	9 (20.0)	7 (15.6)	3 (6.7)	3 (6.7)	3	1.6
2	I do not feel nervous while using the system	0 (0)	9 (20.0)	1 (2.2)	7 (15.6)	9 (20.0)	11 (22.2)	8 (17.8)	5	1.7
3	I feel pressured while working on the ERP system.	10 (22.2)	9 (20.0)	9 (20.0)	10 (22.2)	3 (6.7)	1 (2.2)	3 (6.7)	3	1.7

Graph 7a: Value/usefulness (Individual responses)
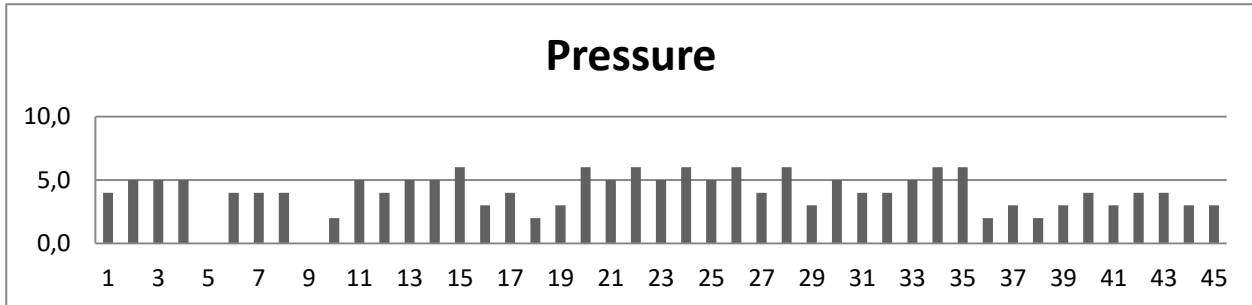
Graph 7b: Value/usefulness (Comparative response of participants in median values)
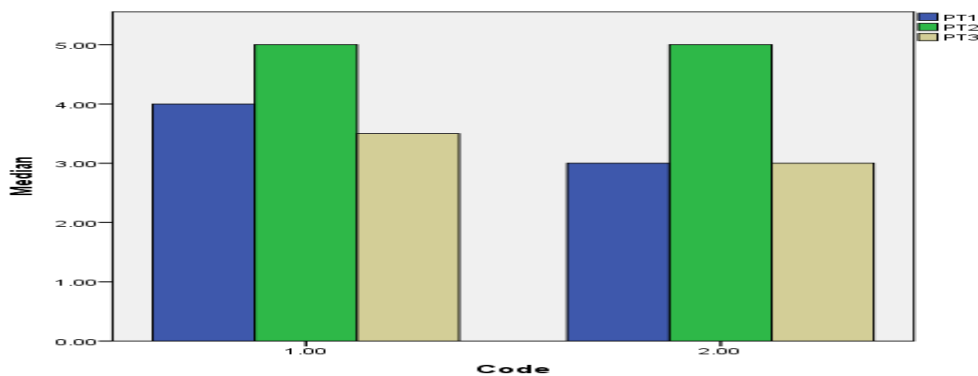

Table 7 describes users' perception about the pressure and tension induced by ERP usage. The highest median score came out to be 5 for the reverse statement no. 2 "I do not feel nervous while using the system" where 17.8% respondents marked it as "very true" and 22.2% as "true"; on the contrary side 20% found it to be "not true". It implies that a greater majority of users believe that ERP usage does not induce stress and pressure. The second highest median for the statement "I feel anxious while working on the new system" is 3; "not at all true" was marked by 11.1% while "not true" was checked by 17.8% respondents and 22.2% respondents found it "somewhat not true". The results for this statement reinforce the second statement of this section. For the third statement "I feel pressured while working on the ERP system" 22.2% marked "not at all true" while 20% checked "not true". The neutral response was given by 22.2% users. Overall this section implies that users do not feel pressure or tension while using it. The comparative value from graph shows that the feeling of anxiety is low yet slightly higher among faculty members than among the administrative staff.

Below is given the graph of Median values of responses of two groups of Participants (faculty and administrative staff):

Graph8: Comparison of perceptions of two groups (Faculty and administrative staff) - General perceptions, Interest, Perceived Competence, Effort, Perceived Choice, Value and Usefulness, Pressure and Tension
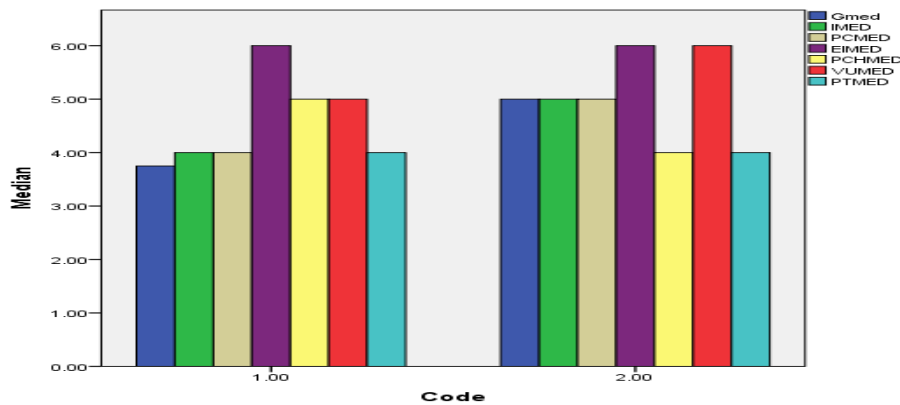
5. DISCUSSION

The above results present an assessment of participants' interest/enjoyment, perceived competence, effort, value/usefulness, felt pressure and tension, and perceived choice as antecedents of ERP usage behavior at the early post implementation stage of ERP. The intrinsic factors of motivation are taken as informal control (Y. Hwang, 2005) in managing ERP adoption at early post implementation stage in the organization under study. The positive perceptions of ERP users in the organization under study represent their positive attitude towards ERP usage. One of the possible interpretations of the results of this study might be that reported responses of ERP users positively relate to their ERP usage behavior (Menges, Tussing, Wihler, & Grant, 2016). Hence, this study extends TAM beyond the investigation of ERP implementation to ERP assimilation at early post implementation stage. Although, it does not deal with examining a causal relationship among the studied variables, they can be further examined empirically in a causal model in future. It might reveal the relative influential role of the variables studied in ERP adoption and assimilation. Secondly, a study can be conducted after six months with the same participants; it will bring forth change in users' perceptions as the ERP adoption matures.

6. CONCLUSION

The present study on IMI as a subjective instrument gives researchers and practitioners' important insights into ERP users experience and allows them to the perceptions of ERP users at the post implementation stage.

It is evident from results that number of participants' majority has personal interest in and enjoyment of ERP usage is above average. In their case intrinsic motivation can affect their self-initiation and intrinsically drive them to learn ERP and face all the challenges and explore new possibilities of performing better by using ERP at work (Deci & Ryan, 2008)(Deci & Ryan, 1985). Hence, conforming to self-determination theory, their interest can work as motivating factor affecting their acceptance of ERP as a complex technology.

According to SDT, competence is one of the three needs that are important for human progress; the other two being autonomy and relatedness (Deci & Ryan, 1985). Competence gives a sense of usefulness and self-assurance for performing an activity effectively (Deci & Ryan, 2008) (Deci & Ryan, 1985). Perceived competence as an important predictor of goal attainment endows people "a sense of need satisfaction from engaging in an activity at which they feel effective". The previous studies have used this construct to predict participants' behavior in different contexts. In the present study this construct has been used to assess ERP users' perception of their competence to use ERP which can further facilitate the achievement of their goals related to successful ERP assimilation beyond other contextual factors of ERP adoption. The responses of the participants in this study indicate ERP users' positive self-evaluation of their competency to use ERP. Their perceptions of competence will affect their interaction with organizational environment at this early post implementation stage as it clearly relates their competence with possible tasks and responsibilities they can undertake perform well at them and create business value. Hence, their competence itself becomes a motivation as they believe that they have mastered a task successfully (Harter, 1978). In the present study majority of ERP users are confident to be competent at using ERP and agree that over the time they will develop expertise. Their perceived competence serves as a pre-condition for maintaining a behavior change (Deci & Ryan, 2000) for ERP adoption over time. However, the response rate indicates the need to examine whether further training is required to motivate employees to use ERP.

Perceived effort is defined as any nuisance inbuilt in complying with a program's requirements (Kivetz,

2003). Effort is considered to be link between motivation and engagement; 'effort and meta-cognitive regulation' translates motivation into engagement (Pintrich, Smith, Garcia, & Mckeachie, 1993) and assures their co-existence. In the current scenario effort/importance is considered to be related to users' motivation to use ERP (Deci, Eghrari, Patrick, & Leone, 1994). Therefore, it is included in this study. The results show that employees consider ERP learning very important for themselves. Therefore, they exert effort to become a competent user of this complex system. It is expected that users' effort will keep them motivated and engaged in learning to use and thereafter continue using ERP in future. However, it is interesting to note that at this early post implementation stage of assimilation, despite knowing the benefits of ERP usage and its importance, users still find it a compulsion to use it rather than their choice. Besides, despite a noteworthy positive response rate, there is noted a dispersion across the scale in their repose choices. It has important implications for practitioners to understand how far given constructs predict the intrinsic motivation of participants for ERP adoption. It can help ERP deploying employers to identify the need to further intervene with extrinsically motivating measures to influence the technology adoption behavior of ERP users and maximize the benefits from ERP implementation. The results give momentum to longitudinal investigation in order to understand different variables which may affect users' performance over the time. This will further help in devising suitable strategies for augmenting users' motivation to use ERP in order to improve the effectiveness of post-implementation ERP usage.

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