# THE EXTERNAL VARIABLES, PERCEIVED EASE OF USE, AND PERCEIVED USEFULNESS TOWARD THE USE OF SIKASA 2.0 SOFTWARE: A SURVEY OF EMPLOYEES IN SATYA WACANA CHRISTIAN UNIVERSITY

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## ABSTRACT

Informasi technology (TI) is sticks on organizations daily activities. The government, business organizations or non-profit organizations are using it to support their business process. In spite of that, the technology's adoption was hang on the certainty level of each individual cognitive. When an individual has some positive perception to technology by using technology acceptance model (TAM) to explain about the influence of cognitive's certainty which are perceived ease of use and perceived usefulness on using application SIKASA 2.0. SIKASA 2.0 is Financial and Accounting System of Satya Wacana as an application based on networking to the necessity of managing financial and accounting data. The respondent of this research are 52 workers of SIKASA 2.0 users, which was taken from total 82 registered users of SIKASA 2.0. The result shows that ease of understanding significantly influence to perceived ease of use; ease of finding and ease of understanding, and computer anxiety isn't significantly influence to the perceived usefulness; ease of finding and ease of understanding significantly influence to the perceived usefulness;; self-efficiency and computer anxiety isn't significantly influence to the perceived usefulness; and both of the constructs influence the using of SIKASA 2.0 together.

*Keywords: technology acceptance model, external variables, perceived ease of use, perceived usefulness, SIKASA.*

## INTRODUCTION

The increased of information technology (IT) embeds in daily activities within an organization. Government, business organization or non-profit organization uses IT to support its business process. Even in the new vision of IT, it directly supports the strategic objective (Riel, 1998). The design of IT does not follow the business process but the business process adapt with IT. Therefore, the availability of IT becomes one strategic decision within an organization. IT encompasses hardware, software, and communication technology should support the creation of sustainable competitive advantage for organization. Moreover, it does not merely, how good IT provided but also the extent of human resources in an organization can accept and execute the new IT. It would likely to change how the system work and style in accomplishing the task which employees should deliver within an organization. It will influence the organization culture as well as the effectiveness of organization. IT should let the employees in the organization feel that they can use IT properly and get the benefit of the project to complete their task.

This research intend in examining the extent of perceived ease of use and perceived usefulness of IT toward the IT usage. Nowadays, Satya Wacana Christian University has applied the new software which so-called *Sistem Keuangan dan Akuntansi Satya Wacana (SIKASA 2.0.)*. SIKASA is the web-based application, which aimed at managing financial and ac-

counting data. The user access SIKASA 2.0 through *http://sikasa* or *http://192.168.1.16.* By applying this software, Satya Wacana Christian University can benefit of efficiency in term of time, energy, and less error in processing and preparing financial and accounting information needed for the best of interest of people within the organization. Therefore, technology acceptance model (TAM) will be used to examine the extent of employees in the organization perceive the ease of use and usefulness of SIKASA in accomplishing their task. TAM comprises constructs namely: external variables, perceived ease of use, perceived usefulness, and the usage (Brown, 2002). External variable is the construct would likely to influence perceived ease of use and perceived usefulness. Perceived ease of use influences perceived usefulness, which means individual can exploit the benefit when he or she can use particular technology easily. Both perceived ease of use and perceived usefulness would likely to influence the usage of technology. For instance, when individual has high-perceived ease of use, he or she can meet intrinsic motivation, while individual who perceive high usefulness of technology can meet extrinsic motivation.

This research is the replication of the previous research conducted by Brown (2002) but with different technology. It will use TAM model to explain the extent of cognitive beliefs influence the usage of technology. The problem formulation of this research are (a) do external variables influence the perceived ease of use and the perceived usefulness of SIKASA 2.0 and (b) do perceived ease of use and perceived usefulness influence the usage of SIKASA 2.0. The research objective is to examine the influence of external variables toward the perceived ease of use and the perceived usefulness of SIKASA and the influence of the perceived ease of use and the perceived usefulness toward the usage of SIKASA 2.0.

The research will be beneficial for the top-level decision maker in Satya Wacana Christian University in evaluating the extent of perceived ease of use and usefulness of SIKASA 2.0 by employees especially for all employees in financial and accounting department and operators in each faculty. It can be used as input whether improvement will be needed in near future in order to provide better technology, which in turn increases the performance of employees in their work place.

## MATERIALS AND METHODS

As organization intend on evaluating the use of new technology for improving the performance of organization, it has to take into account the extent which member of organization accept the new technology. Amongst the most widely used in the literature is the technology acceptance model (TAM) which was developed by Davis (Ifinedo, 2006; Jones & Hubona, 2003). TAM comprises some relevant constructs, which influence the usage of technology. The research model is presented as follows:
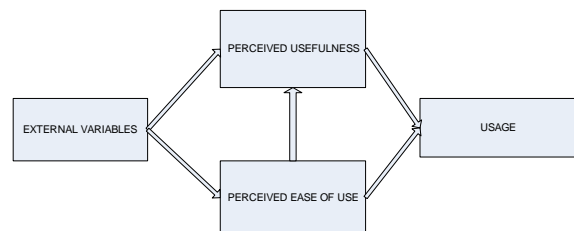


**Figure 1**
**Technology Acceptance Model**
Source**: Brown (2002)**

Some relevant constructs in TAM includes external variables, perceived ease of use, perceived usefulness, and usage. External variables encompasses the individual characteristics which comprising ease of finding and ease of understanding, while technology characteristic comprising self-efficacy and computer anxiety. Those external variables will influence perceived ease of use and perceived usefulness, which both are within beliefs constructs (Hubona & Geitz, 1997). Davis defined perceived ease of use as the degree to which a person believes that using a particular system would be free of effort (Heijden, 2000; Hubona & Geitz, 1997; Kwon & Chidambaram, 2000). It reflects the notion that the less effort sacrificed to use technology, the more perceived ease of use by user. Meanwhile, Davis defined perceived usefulness as "the degree to which a person believes that using a particular system would enhance his or her job performance (Jiang et al, 2000; Malhotra & Galletta, 1999). It reflects the extent of individual perceive on the use that he or she can exploit through particular technology. The perceived ease of

use and perceived usefulness depends on individual characteristics as well as technology characteristics. Therefore, the subsequent hypothesis will be stated as follow:

**H1**: External variables significantly influence perceived ease of use of SIKASA 2.0.

**H2**: External variables significantly influence perceived usefulness of SIKASA 2.0.

Meanwhile, perceived usefulness is a function of perceived ease of use. It reflects that the more perceived ease of use will evoke perceived usefulness. Individual will perceive getting more benefit when he feels that he can use of all features available in particular technology easily. The subsequent hypothesis will be:

**H3**: Perceived ease of use significantly influences perceived usefulness of SIKASA 2.0.

Based upon motivation theory, it is stated that the behavior determined by intrinsic as well as extrinsic motivation (Kwon & Chindambaram, 2000) and Davis et al elaborate that perceived ease of use constitutes intrinsic motivation and perceived usefulness constitutes extrinsic motivation (Kwon & Chindambaram, 2000). Eventually, the usage is dependent variable in TAM and it is theoretically influenced by perceived usefulness and perceived ease of use (Ifinedo, 2006). Furthermore, the use of technology evokes the outcomes both at individual and firm level. Significant individual level outcomes such as improved work performance, enhanced productivity, and user satisfaction become first order effects, which in turn evoke second order effects at firm level through enhanced competitiveness and profitability (Agarwal, 2004). Therefore, that is why so important to boost the factors which enhancing the use of technology due to these outcomes. The last two hypothesis are stated as follows:

**H4**: Perceived ease of use significantly influences the usage of SIKASA 2.0

**H5**: Perceived usefulness significantly influences the usage of SIKASA 2.0.

The population of this research is employees of Satya Wacana Christian University who use SIKASA 2.0 in their daily job. The employees are all operators within Satya Wacana Christian University. The number of registered operators is 82. However, this research con-ducted purposive sampling and the sample size is 52 respondents. Data will be collected through survey. A self-administered questioner were delivered to all employees of financial and accounting department and operators in other units by drop-off/pick up method. The relevant constructs for this research are ease of finding, ease of understanding, self-efficacy, computer anxiety, perceived ease of use, perceived usefulness, and the usage. By using the instrument in Brown's research (2002), Ifinedo (2006), and Malhotra & Galletta (1999), all these constructs are measured through manifest variables and expressed by numeric scales.

*Ease of finding*. This construct is measured through three indicators, which used in Brown's research (2002). These indicators encompass the ease of returning to previous display pages, the ability to determine position within the software and ease of navigating.

*Ease of understanding*. The four manifest variables, which reflect the ease of understanding includes term consistency, understandable terms, links to more detailed information, visually pleasing design and easy to read.

*Self-efficacy*. There are three indicators, which reflect the construct self-efficacy namely the comfort of using software by oneself, the ease of using any function of software if someone wants to, and the ability of using software even there is no help around someone.

*Computer anxiety.* Four indicators are used to reflect the construct computer anxiety namely the extent of nervous, the extent of uncomfortable, the feeling of uneasy, and the extent of scare working with computer.

*Perceived ease of use*. Perceived ease of use is measured by four indicators encompasses the ease of use, the ease of learn, the extent of user friendly and the ease of master.

*Perceived usefulness*. The indicators of perceived usefulness are modified from the indicators used by Ifinedo (2006). The indicators encompass the extent of usefulness, the extent of performance improvement, and the extent of system help to make the job easier.

*The usage*. The construct of usage is measured through three indicators used by Malhotra and Galletta (1999) namely the amount of times use software during

a week, the amount of hours use software every week, and the frequent of using software.

## RESULT AND DISCUSSION

Data analysis consists of descriptive analysis, validity and reliability test and hypothesis testing which use multiple regression analysis. Each would be delivered as follows. There are 52 respondents participated in filling the questionnaires. Based upon gender criteria, there are 27 males (51.9%) and 25 females (48.1%), while based upon age criteria there are 25 respondents (48%) which are within 23 years to less than 34 years age; 16 respondents (31%) which are within 34 years to less than 45 years and 11 respondents (21%) which are above 45 years. The following table (Table 1) describes the characteristic of respondents.

**Table 1**
**Descriptive Statistic**

| Category | Sub Category | Frequency | Percentage |
|----------|--------------|-----------|------------|
| Gender | Male | 27 | 51.9 |
|  | Female | 25 | 48.1 |
| Age | 23 years - <34 years | 25 | 48 |
|  | 34 years - <45 years | 16 | 31 |
|  | >45 years | 11 | 21 |

**Source**: Output SPSS version 13.0 (2007).

The validity and reliability test are conducted to examine whether all relevant constructs in TAM model meet the criteria of validity and reliability. In order to examine the validity of all items, Pearson's moment correlation is employed, while Cronbach Alpha test is intended to examine the reliability. For validity test, the result of Pearson's moment correlation is as follows:

**Table 2**
**Validity Test**

| Construct | Indicator | t-value |
|-----------|-----------|---------|
| Ease of Finding | EOFIN1 | 0.902 |
|  | EOFIN2 | 0.864 |
|  | EOFIN3 | 0.849 |
| Ease of Understanding | EOUN1 | 0.772 |
|  | EOUN2 | 0.758 |
|  | EOUN3 | 0.806 |
|  | EOUN4 | 0.828 |
|  | EOUN5 | 0.866 |
| Self-Efficacy | SEFF1 | 0.741 |
|  | SEFF2 | 0.732 |
|  | SEFF3 | 0.813 |
| Computer Anxiety | CANX1 | 0.861 |
|  | CANX2 | 0.911 |
|  | CANX3 | 0.925 |
| Perceived Ease of Understanding | PEOU1 | 0.932 |
|  | PEOU2 | 0.944 |
|  | PEOU3 | 0.958 |
|  | PEOU4 | 0.778 |
| Perceived Usefulness | PUSE1 | 0.851 |
|  | PUSE2 | 0.875 |
|  | PUSE3 | 0.879 |
| Usage | USAGE1 | 0.893 |
|  | USAGE2 | 0.893 |
|  | USAGE3 | 0.889 |

**Source**: Output SPSS version 13.0 (2007).

Based upon table, there is no invalid indicator. The pearson's moment correlation for each indicator is significant ($p < 0.05$) or t-value > cut off t-value. Therefore, these indicators would be processed further to measure their reliability. The subsequent table shows the result of reliability test. All of the item of contruct are valid because t value > 0,268 (cut off t value).

**Table 3**
**Reliability Test**

| Construct | Cronbach's Alpha |
|---|---|
| Ease of finding | 0.830 |
| Ease of understanding | 0.853 |
| Self Efficacy | 0.631 |
| Computer anxiety | 0.863 |
| Perceived Ease of Use | 0.922 |
| Perceived Usefulness | 0.829 |
| Usage | 0.853 |

**Source**: Output SPSS version 13.0 (2007).

The value of Cronbach alpha for each construct is reliable due to meet the minimum cut off rate 0.6 (Ghozali, 2005). Therefore, all construct can be used for hypothesis testing. This research employ multiple regression analysis for hypothesis testing. The variance inflation factor is also applied to identify whether or not the multicolinearity problem. The cut off rate for multicolinearity problems is variance inflation factor (VIF) less than 10.

There are five hypotheses to be tested by using multiple regression analysis. The criterion for accepting alternative hypothesis is when t-value higher than cut off t-value (Ghozali, 2005). On the other hand, the criterion for rejecting alternative hypothesis is when t value lowers than cut off t-value or p-value is higher

than the cut off p-value. This research uses cut off t-value ± 1.96 and cut off p-value 0.05. The result of each hypothesis testing is presented as follows:
Hypothesis 1 is stated with null hypothesis and alternative hypothesis as follows:

**Ho:** External variables does not significantly influence perceived ease of use SIKASA 2.0

**Ha:** External variables significantly influence perceived ease of use SIKASA 2.0.

The result of multiple regression analysis is presented in Table 4. Among four variables, ease of understanding (AEOUN) significantly influences perceived ease of use (p = 0.004), while the rest do not significantly influence perceived ease of use respectively. It means the result accepts alternative hypothesis and reject null hypothesis.

Meanwhile, t-value for ease of finding (AEOFIN), self-efficacy (ASEFF) and computer anxiety (ACANX) are lower than cut off t-value ± 1.96 or probability value higher than cut off p-value 0.05. It shows the acceptance of null hypothesis for those three variables and the rejection of alternative hypothesis. Overall, there is no multicolinearity problem toward this multiple regression since the variance inflation is lower than 10.

Hypothesis 2 is stated with null hypothesis and alternative hypothesis as follows:

**Ho:** External variables does not significantly influence perceive usefulness of SIKASA 2.0.

**Ha:** External variables significantly influences perceive usefulness of SIKASA 2.0.

**Table 4**
**Result of Regression Analysis For Hypothesis 1**

**Coefficients$^a$**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Tolerance | VIF |
| 1 | (Constant) | 2.435 | .722 | | 3.374 | .001 | | |
| | AEOFIN | .205 | .142 | .218 | 1.445 | .155 | .449 | 2.226 |
| | AEOUN | .419 | .138 | .433 | 3.031 | .004 | .501 | 1.995 |
| | ASEFF | .066 | .132 | .080 | .498 | .621 | .400 | 2.501 |
| | ACANX | -.303 | .191 | -.180 | -1.587 | .119 | .794 | 1.259 |

a. Dependent Variable: APEOU

**Source**: Output SPSS version 13.0 (2007)

Table 5 shows the result of regression analysis. There are two variables, which significantly influence perceives usefulness of SIKASA 2.0 namely ease of finding and ease of understanding. For each, t-value is higher than cut off t-value ± 1.96 and probability value less than p=0.05. Therefore, these reject null hypothesis and accept alternative hypothesis.

Hypothesis 3 is stated with null hypothesis and alternative hypothesis as follows:

**Ho:** Perceived ease of use does not significantly influences perceived usefulness of SIKASA 2.0.

**Ha:** Perceived ease of use significantly influences perceived usefulness of SIKASA 2.0.

**Table 5**
**Result of Regression Analysis For Hypothesis 2**
**Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Tolerance | VIF |
| 1 | (Constant) | 2.320 | .535 | | 4.339 | .000 | | |
| | APEOU | .606 | .090 | .689 | 6.731 | .000 | 1.000 | 1.000 |

a. Dependent Variable: APUSE

**Source**: Output SPSS version 13.0 (2007).

However, two variables does not significantly influence perceive usefulness of SIKASA 2.0. Self-efficacy and computer anxiety evoke t value lowers than cut off t-value ± 1.96 and probability higher than 0.05. Therefore, these results accept null hypothesis and reject alternative hypothesis. Besides, there is no multicolinearity due to VIF less than 10.

The result of Table 6 shows that perceived ease of use significantly influences perceived usefulness of SIKASA 2.0. The result of t-value is 6.731 higher than cut off t-value ± 1.96 and probability value is lower than 0.05. Therefore, this result reject null hypothesis and accept alternative hypothesis.

**Table 6**
**Result of Regression Analysis For Hypothesis 3**
**Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Tolerance | VIF |
| 1 | (Constant) | 2.553 | .591 | | 4.317 | .000 | | |
| | AEOFIN | .273 | .116 | .331 | 2.354 | .023 | .449 | 2.226 |
| | AEOUN | .370 | .113 | .435 | 3.271 | .002 | .501 | 1.995 |
| | ASEFF | .009 | .108 | .013 | .085 | .932 | .400 | 2.501 |
| | ACANX | -.260 | .156 | -.176 | -1.661 | .103 | .794 | 1.259 |

a. Dependent Variable: APUSE

**Source**: Output SPSS version 13.0 (2007).

Hypothesis 4 is stated with null hypothesis and alternative hypothesis as follows:

**Ho:** Perceived ease of use does not significantly influences the usage of SIKASA 2.0

**Ha:** Perceived ease of use significantly influences the usage of SIKASA 2.0

Table 7 shows perceived ease of use significantly influence the usage of SIKASA 2.0. The result of t-value is 2.019 higher than cut-off value ± 1.96 and probability value is lower than 0.05. Based upon this result, it rejects null hypothesis and accept alternative hypothesis.

result of regression analysis ease of understanding significantly influence perceived ease of use SIKASA 2.0, while ease of finding, self-efficacy and computer anxiety does not significantly influence perceived ease of use SIKASA 2.0. Ease of finding seems contributing in a small portion of perceived ease of use SIKASA 2.0. Probably, ease of finding has nothing to do with perceived ease of use SIKASA 2.0. Ease of finding is considered only one-step within a series of steps of using such application. Meanwhile, there is possibility that respondents perceived self-efficacy for the whole use

**Table 7**
**Result of Regression Analysis For Hypothesis 3 & 4**

**Coefficients**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Tolerance | VIF |
| 1 | (Constant) | -4.379 | 1.284 | | -3.411 | .001 | | |
| | APEOU | .514 | .255 | .284 | 2.019 | .049 | .525 | 1.906 |
| | APUSE | .978 | .289 | .475 | 3.379 | .001 | .525 | 1.906 |

a. Dependent Variable: AUSAGE

**Source**: Output SPSS version 13.0 (2007).

Subsequently, hypothesis 5 is stated with null hypothesis and alternative hypothesis as follows:

**Ho:** Perceived usefulness significantly influences the usage of SIKASA 2.0.

**Ha:** Perceived usefulness does not significantly influence the usage of SIKASA 2.0.

Based upon Table 7, there is no problem of multicolinearity since VIF lower than 10. Perceived usefulness significantly influences the usage of SIKASA 2.0. It is shown by t-value higher than cut off t-value ± 1.96 and probability value which is lower than 0.05. Therefore, it rejects null hypothesis and accepts the alternative hypothesis.

**DISCUSSION**

It is very important to analysis and gives some context of result given by statistic analysis. Based upon the

of computer and its applications rather than merely for one application such as SIKASA 2.0. Therefore, the self-efficacy of SIKASA 2.0 embeds in the self-efficacy of computer and its applications as the whole and therefore it has directly nothing to do with perceived ease of use SIKASA 2.0. The same notion is applied for computer anxiety. The respondents probably realize that computer is their main equipment in doing their task. In addition, they also need certain capabilities in using such equipment. Therefore, it gives small contribution to the perceived ease of use SIKASA 2.0. They are already familiar with computer and consider it as their main equipment to do their task whether they use or not SIKASA 2.0. Besides, they already have some capabilities to use the computer and its application.

Ease of finding and ease of understanding significantly influence perceived usefulness of SIKASA 2.0. It is understandable when respondents highly associate these variables with perceived usefulness of

SIKASA 2.0. When they easily find and understand all the menu and sub menu within this application, they can perceive higher usefulness of SIKASA 2.0. Self-efficacy and computer anxiety do not significantly influence perceived usefulness of SIKASA 2.0. Self-efficacy and computer anxiety seems to be within the context of the whole computer and its applications rather than only on one application such as SIKASA 2.0. Therefore, when respondents have high self-efficacy due to the previous use of computer and its applications, it does not significantly influence perceived usefulness of SIKASA 2.0. Respondents probably consider computer as their main equipment to do their task rather than scary tool. They are familiar with the computer and required to have minimum capability to operate the computer.

Subsequently, perceived ease of use significantly influences perceived usefulness of SIKASA 2.0. It is logic when respondents can easily use one application, they can exploit the advantage of such application. They can maximize all features available and get more benefits toward the use of application. The latter causal relation is the influence of perceived ease of use and perceived usefulness toward the usage of SIKASA 2.0. These constructs significantly influence the usage of SIKASA 2.0. Perceived ease of use can meet internal motivation, which in turn increases the frequency of use. Internal motivation has something to do with the nature of application. When respondents can easily use the application, they can meet the need of achievement in applying such application. Perceived usefulness meets external motivation and therefore pushing the use of SIKASA 2.0. The external motivation can be implemented in term of achieving reward and/or avoiding punishment.

## CONCLUSION

Ease of understanding significantly influence perceived ease of use SIKASA 2.0. As individual understand all the available menu and sub menu, he or she believe that SIKASA can be used easily. Ease of finding, self-efficacy and computer anxiety do not significantly influence perceived ease of use. Probably ease of finding is only small of portion, which contributes to the overall perceived ease of use. Self-efficacy does not significantly influence perceived ease of use SIKASA

2.0 because they still can perceive higher self-efficacy due to the use of other applications rather than SIKASA 2.0. Computer anxiety has insignificant influence because respondents perceives computer as common equipment in doing their task through using other applications instead of SIKASA 2.0. Ease of finding and ease of understanding significantly influence perceived usefulness SIKASA 2.0. When respondents perceive higher ease of finding and ease of understanding, they perceive they can make use of such application easily.

Self-efficacy and computer anxiety do not significantly influence perceived usefulness SIKASA 2.0. The concepts of self-efficacy and computer anxiety seems to be within context of using computer and its application as the whole rather than focusing only on one application such as SIKASA 2.0. Perceived ease of use significantly influences perceived usefulness SIKASA 2.0. It is understandable that individual can exploit the benefit of SIKASA when he or she believes that SIKASA 2.0 can be used easily. Perceived ease of use and perceived usefulness significantly influence the usage of SIKASA 2.0. Perceived ease of use can meet internal motivation, which in turn increases the frequency of use. Perceived usefulness meets external motivation and therefore pushing the use of SIKASA 2.0.

## LIMITATION OF THE RESEARCH

This research applies Pearson's moment correlation to measure validity for the instruments used in this research. Nonetheless, it only measures part of internal validity namely convergent validity rather than discriminant validity. The better tools to measure internal validity in term of convergent and discriminant validity is factor analysis. Nevertheless, due to sample cannot meet the minimum requirement then pearson's moment correlation is used. Conducting validity test by factor analysis requires minimum less than 100 sample size.

## MANAGERIAL IMPLICATION

The management of organization has a concern of increasing job satisfaction of their employees. In doing so, the employees can be encouraged to increase their output for the best interest of organization. Based upon

the research result, the management can boost the use of SIKASA 2.0 by increasing the perceived ease of use and perceived usefulness of SIKASA 2.0. In order to increase perceived usefulness, upgrading SIKASA 2.0 to be more user-friendly device would be necessary. The institution can deliver such application for meeting internal and external motivation, which in turn can lead to the job satisfaction.

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