



Design of E-Data Collecting Tools for Probationers

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ABSTRACT

The objectives of this study is to design an electronic data collecting tools for therapeutic community facilities in Quirino Province of the Philippines. The data to be collected on the therapeutic facilities will be used to analyse how the offenders are being treated inside this facilities. The collected data were used to design a data collection tools electronically. The design of the data collecting tools was presented in this study whose emphasis is to use the available electronic equipment for the probationers. Result shows that there is a need to train the probationers on how to use the internet and communication equipment not just for the purpose of maximization on the use of the electronic tool for data collection but also for them to be oriented on the use of equipment as their preparation after their life outside the therapeutic community.

Keywords: Electronic Tool, Internet tools, Probationers, Probationary

1. INTRODUCTION

The experiences of prisoners have been an significant consideration for correctional facilities in performing criminal career research according to [1]. The experience of offenders is essential to predict how they will react to punishment and, ultimately, to anticipate the outcome of an intervention in criminal justice. Probation officers understand and act upon this conviction the value of involving probationers.

Experience is deemed our biggest teacher. Some are learning from their experiences and some are not. According to [2], experience is not something that individuals belong to or have, but rather denotes transactions within and through space and time within irreducible person-in-setting units, and is infused with effect that is not (only) the product of mental constructs.

According to Romano as quoted by [2] experience, in its fundamental sense, is that which, by bringing us to play ourselves, profoundly modifies us in such a way that we can never be the same again after having crossed, experienced, traversed it. Undergoing a illness, grieving, happiness, love, traveling, writing a book, painting are experiences in the first

philosophical sense, definitely plain, yet trivial. The most typical trait of lay people associating with wisdom may be the life experience [3].

The government has existing programs for probationers that motivated the researchers to come up with a study that aims to possibly explore their life experiences are currently in the therapeutic community facilities of the province of Quirino, Philippines. An initial study was conducted by [4] that provided the tools on how the data were collected and treated manually. Then the study of [5] also provides the qualitative information on the life experiences of the probationers that are currently in the therapeutic facility. With this data, this study was conducted to find out a design on how the data collection can be easily executed with the use of modern method that fits to the existing facilities of therapeutic community and find out how this method can help the probationers in the future.

2. METHODS

The study [4], [5] used a self-structured reference questionnaire and was performed through a thorough interview. At the other hand, they also considered a case study style. According to [6], case studies were primarily used in the social sciences and found to be particularly useful in practical fields (such as education, management, public administration, and social work). As such, since there was direct observation and communication with the participants, the researcher used a qualitative research. The case study methodology by purposeful analysis was used to obtain a better understanding of the probationers' life experiences under the therapeutic community.

The study's locale is within Quirino Province since the study was the most attainable for the researcher. The researcher had five participants currently undergoing the therapeutic community probation program, and they are already in the upper phase. The probation officer chose them, and the researcher was given a list of the facts. The researcher also interviewed four former probationers, who graduated from the supportive service system and whose cases were dismissed, to get a stronger and deeper understanding of the probationers' life experiences.

In the above mentioned information, the collection of data is more on the interview using guided questions that was reviewed and validated [4].

3. EXISTING ELECTRONIC DATA GATHERING TOOLS

Electronic Data Capture (EDC) is a computerized system for processing and storing qualitative and quantitative data in electronic format. EDC was first developed in the early 1980s [7] to resolve the many imperfections of paper-based types, such as increased errors by late transcription and identification of imprecision's. The first of those EDC systems where Microsoft Access and MySQL are widely embraced. The cloud, which turned every web browser into a forum to imagine and full objects, came with the turn of the century. The breakthrough has become the paperless movement in the world. The following are some of the examples of mobile data collection tools (table 1).

Table 1: Mobile Data Collection Tools

Data Collection Tools	Functionalities	Drawbacks
Teamscope (Android & iOS)	Researchers can make use of Teamscope's case management feature when conducting a longitudinal study.	With subscription Plan
Open Data Kit (Android)	Open Data Kit (ODK) is open-source data collection, data management and usage tools in resource-stricken environments. ODK 's goal is to provide easy-to-use, easy-to-change, and easy-to-scale open source and standard tools (ODK website).	Security/ Free Open Source
KoboToolbox (Android)	It is used for humanitarian affairs and save the children	Security/ Free Open Source

Mobile apps for data collection become an integral part of safe, accurate, and scalable study. Also in offline environments, the flexibility and reliability of these electronic data collection apps open doors to new possibilities for science. It starts with the flexibility and adaptability of

developing research-specific forms that function even in the most demanding environments; continues with safe and collaborative data entry, and ends with faster data processing and visualization. What is the intention of the researchers is to design an electronic data collection tools for probationers of

4. RESULTS AND DISCUSSIONS

The design of electronic data collecting tools for probationers includes the following:

1. Graphical user interface (GUI) – this is where the data will be entered by hand by the probationers and also used to set up by the user.
2. Validating tool (VT) – this is where the data inputs is validated if it matches the expected entry on its name, and other information.
3. Report tool (RT) - this is where the user or the interviewer can convert the result of the interview or survey into a summative report.
4. Setting tool (ST) – this is where the user can setup another interview or survey entry from another group of respondents as preparation to the recommendations of the study of [4] and [5].

Gantt Chart of Activities:

Table 2: Gantt chart of Activities

Activity	Month			
	1	2	3	4
Data Gathering				
Planning				
Research on several tools				
Draft the design				
Recommendation				
System implementation				

The design of e-data collecting tools started with data gathering. Actual data from the previous studies of [4] and [5] was evaluated to find out the important fields to be considered in system implementation. Though system implementation is an extension of this study, it was included as part of the activities of the design. Planning is one of the crucial stage of this research. Planning activity included but not limited to justification that there is a need to explore and find other ways to collect data from probationers as we all know that probationers are still prisoners and some of the interviewers may be afraid of face to face data collection. Moreover, Research several tools are conducted to compare existing data collection tools and find out which one is better and which one is best. However, from table 1 that was extracted from [8], the researchers focused their attention to the drawbacks. The drawbacks are security and cost. So the researchers proceeds with the draft of the design because it was already taken into considerations that there is a need to have a customized data collecting tools for probationers. The draft of the design will able to see the basic operations of the designed data collection tool and finally, recommendations and system implementation will take place.

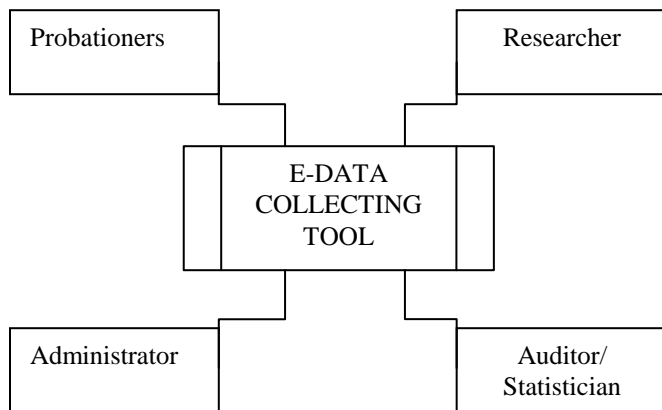
Block Diagram:**Figure 1:** The Block diagram of E-Data Collecting Tool

Figure 1 shows, the block diagram of E-Data Collecting Tools for Probationers. This figure was based on the actual data collection conducted by [4] and [5] in relationship to the therapeutic community respondents. It can be seen in the figure that there are four major actuators who interact with the system. The probationers, researchers, administrator and auditor or statistician. The probationers will use the GUI of the system and with the help of the instruction guide provided by the interviewer as part of the output for system implementation. The administrator is will be the one to enter the questions on the data collecting tool and will be validated by the auditor or statistician. The researcher, is the one who will develop the questions or survey to be submitted to the administrator for data entry and the researcher will be the one who will initiate the interview via online/offline or via mobile application as part of the system implementation.

Suggested computer program to be used in developing the System:

The rapid application development (RAD) model is highly recommended for software methodology wherein the developer will develop and test each module. For mobile application, android studio will be used as a language to develop the system that operates on the android phone, just like the examples of data collecting tools of table 1, the system is capable of executing in cellular phone. For desktop application, PHP and MySQL maybe considered for an open source application with some encryption and decryption algorithm to ensure the security and confidentiality of the data.

Tools for System Evaluation:

Table 3 shows the Suggested System Evaluation using ISO 25010.

Table 3: ISO 25010 Criteria

Criteria	Sample Mean	Sample Verbal Interpretation
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Functionality	4.50	Excellent
Reliability	4.60	Excellent
Portability	4.50	Excellent
Usability	4.40	Excellent
Performance Efficiency	4.40	Excellent
Security	4.60	Excellent
Compatibility	4.50	Excellent
Maintainability	4.50	Excellent
Grand Mean	4.50	Excellent

Legend: 4.20 – 5.00 - Excellent, 3.40 – 4.19 - Very Good, 2.60 – 3.39 – Good, 1.80 – 2.59 – Fair and 1.00 – 1.79 - Poor

The eight (8) criteria of ISO 25010 are recommended for system evaluation. Functionality deals with completeness, correctness and appropriateness. Reliability has something to do with maturity, availability, fault tolerance and recoverability. While portability is concerned with adaptability, installability and replaceability. On the other hand, In addition, usability is concern on several conditions that the system is capable of operating correctly. On the other hand, performance efficiency deals with time behavior, resource utilization and capacity. While security has something to do with the ability to protect information's confidentiality, integrity, non-repudiation, accountability and authenticity. Moreover, compatibility is the ability to adjust from other products and platforms. And finally, maintainability is concern on the adaptation to change that includes its modularity, reusability, analyzability, modifiability and testability. This also conforms to some of the components used by [10] in predefined quality requirements of the designed system.

5. CONCLUSIONS AND FUTURE WORKS

The focus of the study was the collected data from probationers under the therapeutic community of Quirino Province, Philippines as performed by [4]. However, the way on how the data were collected motivated the researchers to come up with this study. Thus, the following are some of the conclusions and future work of the study:

1. The way the data was collected from probationers of province of Quirino, Philippines was analyzed to find out other possible way of data collection.
2. The activities on how to develop the data collection tool was drafted.
3. The block diagram of the system and its actuators are drafted and explained.
4. The evaluating tool is identified and ISO 25010 was used as a tool for evaluation.

The study also suggested the prospect developer to read information on this study to serve as a guide in developing the system.

REFERENCES

1. Durnescu, I., Kennefick, L., Sucic, I., & Tkalic, R.G. (2018). Experiencing offender supervision in Europe: the eurobarometer – lessons from the pilot study. *Probation Journal*, Vol. 65(1) 7–26 DOI: 10.1177/0264550517748360
2. Roth, W.-M., & Jornet, A. (2014). Towards a theory of experience. Retrieved January 26, 2019 from <https://onlinelibrary.wiley.com>
3. Glück, J., & Bluck, S. (2014). The more life experience model: A theory of the development of personal wisdom. Retrieved January 26, 2019 from <https://www.researchgate.net>
4. Mariano, J (2019). The impact of therapeutic community in the perception of a probationer in Quirino Province, Philippines. *International Journal of Scientific and Technology Research*. Volume 8, Issue 6.
5. Dioses, G, Mariano, J, Daniels, J. & Dellosa, R. (2019). The life experiences of probationers under therapeutic community in Quirino Province, Philippines. *International Journal of Scientific and Technology Research*. Volume 8, Issue 6.
6. Starman, A.B. (2013). The case study as a type of qualitative research. Retrieved March 13, 2019 from <http://www.sodobnapedagogika.net>
7. Hyde, A.W. (1998). "The Changing Face of Electronic Data Capture: From Remote Data Entry to Direct Data Capture". *Therapeutic Innovation & Regulatory Science*. 32 (4): 1089–1092. doi:10.1177/009286159803200429.
8. Ultimate guide to mobile data collection (2020). Retrieved April 2020, from <https://www.teamscopeapp.com/mobile-data-collection-guide/7-mobile-data-collection-apps-for-field-research>.
9. Rebes, P (2019). Software Quality Standards—How and Why We Applied ISO 25010, retrieved April 2020 from <https://www.monterail.com/blog/software-qa-standards-iso-25010>
10. Nishad Nawaz. Artificial Intelligence interchange human intervention in the recruitment process in Indian Software Industry. *International Journal of Advanced Trends in Computer Science and Engineering*. Volume 8, No.4, July – August 2019 <https://doi.org/10.30534/ijatcse/2019/62842019>