

# The Effectiveness of RPA in Fine-tuning Tedious Tasks

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**Abstract—**This research focuses on the usage and importance of RPA (robotic process automation) to fine-tune tedious work such as filling in forms of education workshops. The research looks at how RPA can be used to prepare learning documents and materials used by large numbers of participants. The study was conducted using an RPA to test cases with repetitive routines. It was proposed that the process of automated work management and AI would result in a more efficient and effective workflow while reducing the error margin. The research will show that RPA can manage a large capacity of documents with very high accuracy, which will be beneficial for educational workshops with many participants requiring a great deal of material preparation and exportation for analysis afterward.

**Keywords—**RPA, AI, routine work, learning materials, Work Management Automation

## I. INTRODUCTION

RPA can help on a national scale together with Optical Character Recognition (OCR) to handle a large number of materials. This research will add new technology to the development of RPA. Specifically, a well-known RPA, UiPath, is a new tool that has recently been introduced to the workplace. This tool is working as a bot that follows the instructions of a programmed flowchart for the bot to perform specific actions the user has created for it. In this research, we will focus on the process of how this RPA will follow a flowchart for filling out and reading Google forms and inputting the information filled out in the forms onto a spreadsheet [1]. Then, it will export the spreadsheet into a local file of the device. This process is selected as an example for this research with the result that RPA can assist in the educational field [2]. Educational workshops require a lot of work for preparing materials, recording, and exporting documents. Applying RPA for the educational field is counted as beneficial in applying cutting-edge technology for routine work [10].

To utilize RPA, there needs a clear workflow to manage documents in a workshop, collect data in the documents, and

export documents in a particular format. Preparing mandatory elements of a workshop such as a list of names, syllabus, or other course materials is needed at multiple times when there are similar workshops running nationwide. RPA will be especially effective for nationwide workshops with thousands of participants [10]. Therefore RPA will handle the limitations of tedious tasks by fine-tuning documents faster and more effectively [12].

This research will go through each step in detail from reading the files and processing them into automating and filling out spreadsheets and exporting them. Using this technology handles redundant steps in academic forms that require a lot of information to be filled in [13]. It will be compared with how much impact it has between manual and automated steps.

### A. Objectives

Maintain and analyze the usage of RPA, the impact of the tool versus manually with a human user to perform certain tasks. To have an RPA tool that can effectively complete repetitive tasks such as filling out a form from information on a spreadsheet with complete accuracy can be used in aiding the educational field for preparing materials needed for workshops.

### B. Target Group

Educational workshops that require a great deal of maintenance and management because of a large number of participants (thousands). The RPA in this research will help conduct and manage the resources needed to keep the flow of the workshops smooth and manageable for both the organizers and participants.

## II. LITERATURE REVIEW

### A. Basic Features

Research test:

- In this test the RPA is used to fill out a Google Form, then take that filled out form and enter the information into a spreadsheet, and save the

spreadsheet to a computer as a local file.

How it works:

- This RPA works by inputting a flow for the automated system to perform the necessary tasks.

### B. Existing Platforms

There are a few platforms that provide an RPA bot such as Pega, BluePrism, and WinAutomation [7]. However, UiPath is a program that allows for a very clear understanding and specific flow of the algorithms for the bot to follow [8]. The user can control and program the bot up to their needs [11].

### C. Related Technology

The other RPAs do not offer 100% coverage of usage for the bots. Implementing AI into the RPAs currently, gives a large margin of error when the RPA faces too many commands inputted [2]. The AI is not able to handle so many new commands at once [3]. From its introduction AI in many forms is used to maintain and learn from commands to achieve a better work process [6]. Whereas Work Automations and management software have existed in the past, they still require people to maintain and keep track of the records rather than letting a bot perform those tasks and check the results afterward. [11, 13]

### D. RPA Work Automations and AI

RPA Robotic Process Automation has proven to be a critical game-changing tool in the fields that require a lot of redundant processes. With old existing technology such as work automation and management software a user needs to keep track of the process of the preexisting AI. RPA implements these two factors into one [6]. RPA uses the procedure of a work automation management program in processing the orders and commands to follow the flow of the work. Implementing AI in later steps provides for a better, clearer, and more efficient understanding of the process. While following the process effectively and/or finding a way around the process for it to become faster and/or more effective in different ways of completing the tasks is required [7]. RPA will still need a user to maintain its workflow. However, it will require less effort for the user who is controlling the RPA. The RPA will process the initial commands and learn with AI efficient methods to produce a better algorithm. This would be more efficient since only one AI would need to be created for the entire program. This allows the AI to face many different kinds of tasks and learn to operate them [12].

### E. RPA Functionality Process

UiPath is designed for the user to create a flowchart for the bot to complete specific tasks. In this example, we set it to create an outline for an educational workshop flow. This

RPA will go through these steps: Google form login > link to URL drive > How to select from spreadsheet to Google form. See Figure 1. Below

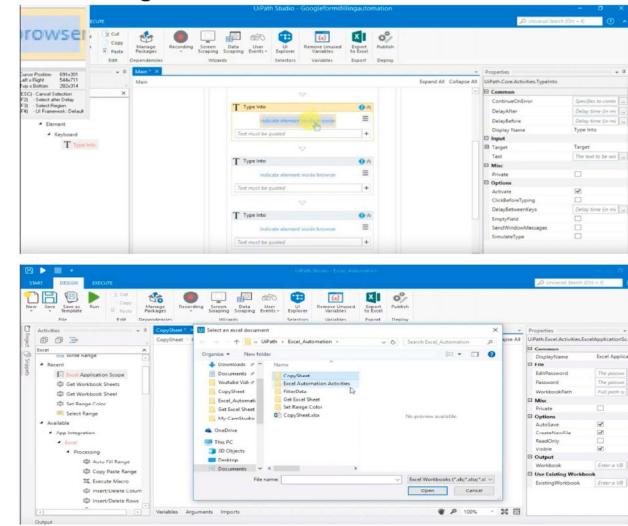


Fig. 1. Design and Implementation and Exporting of the Documents Location

Figure 1, shows an example of exporting a Google form response to spreadsheet > Read results, then download file in folder > Download URL into different folders on the local computer.

This is an example that shows the process of designing the flowchart for the RPA for the RPA to perform the task. Later, implementing the flowchart according to what the user wants the RPA to perform (in the example of Figure 1) the user has prompted the RPA to copy a spreadsheet. This is one of the basic flows for the RPA to follow and can aid in the educational field for managing documents in a large educational workshop of many participants.

### F. The Gap of the Current Situation and Implementations

Currently, RPA in some platforms does not offer such advanced procedures or multiple procedures for the bot to follow. Therefore, these bots are only able to accomplish simple tasks such as opening or closing different tabs or windows. However, UiPath is a program that allows a more complex flow for the bot to follow. UiPath allows for the RPA bot to perform more advanced tasks such as filling out or copying forms to export and import files from and onto the local device, on which the bot is being used [4].

RPA for AI in operational levels, RPA requires a flow that has clear specific instructions for the bot to follow. However, if users try to add in more features to implement into the RPA there will be a lot of errors with low accuracy. The reason for this is that AI in the RPA isn't currently stabilized [5]. Therefore, there is a monitoring process for users to observe with the bot. But with AI implemented into RPA. RPA can learn and copy redundant human tasks, and perform the tasks faster, more effectively, and more accurately than humans [6].

### III. DESIGN

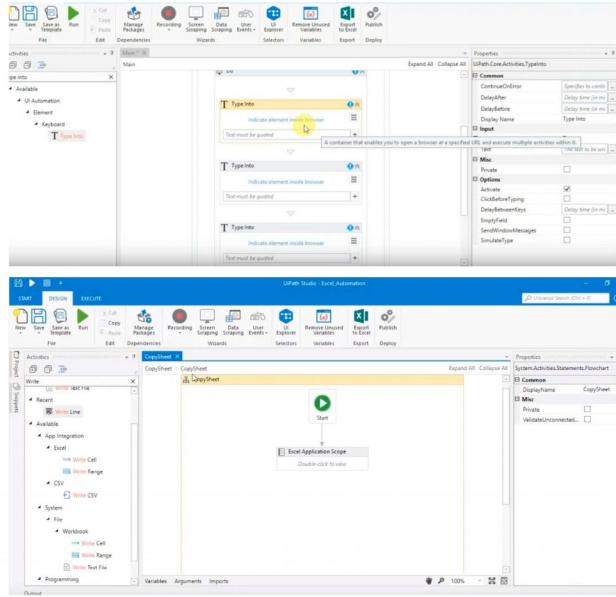


Fig. 2. Design of the RPA flow

Figure 2 shows the design process of the RPA flow. It illustrates how easily and effectively the user can prompt the RPA to perform a certain task.

RPA focuses on the usage of UiPath, which is a tool that provides a service for RPA. UiPath focuses on the simplicity and ease of use for the user. Allowing the user to create commands in the form of a flow chart allows for ease of use and the system to follow along. The user can edit, delete, or add actions according to their needs. This design has proven to be effective for both the user and the system to create a specific flow of the work process. The design has proven its effectiveness in simplicity and the ability to get the job done.

### IV. IMPLEMENTING AND TESTING

This research has tested how an educational workshop with a clear workflow such as pretest, posttest, and evaluation forms is required. The study has proven that a Google form has a limited capacity to export output or see results if used manually. The RPA still has to be trained for a standardized filter of information for specific purposes for comparing and/or analyzing after the workshop. As of now with linear or simple forms RPA can guarantee a 100% satisfaction. But with complex forms such as opinions the RPA with AI will need to understand the standardized filters.

The rates of satisfaction drop by 5-10% according to how many exceptions and handlings are added to the RPA, see Figures 3, 4, and 5.

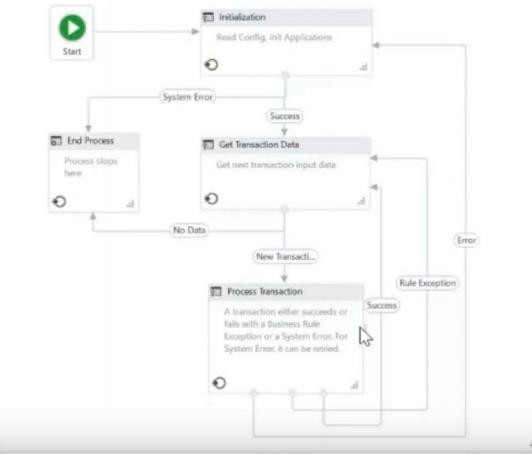


Fig. 3. Shows a more complex flow with exception handling



Fig. 4. Shows exception handlings for types of data

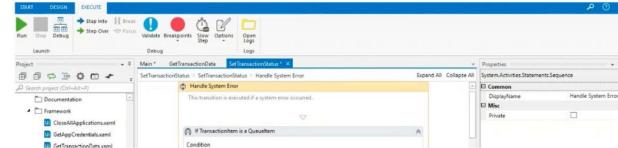


Fig. 5. Shows Error Exception Handling

In this test the RPA is used to fill out a Google Form and then take that filled out form and enter the information into a spreadsheet and save the spreadsheet to the computer as a local file. This is done while analyzing different fields and categories of data types combining linear forms and complex forms to calculate the final percentage of satisfactory results

#### A. Key findings

- RPA has proven to be effective in being able to complete repetitive tasks with a smaller error margin than human users.
- AI in RPA will need to be improved further in adding future instructions for the RPA to perform correctly with a smaller error margin.
- RPA uses the old style of work management automation and implements the usage of AI for the tasks to be completed more efficiently and effectively.
- RPA can perform tasks faster than human users after being trained correctly to complete corresponding tasks.
- RPA can implement its AI methods to learn and copy the workflow of human users, then implement that to achieve a better workflow of the system

## B. Benefits of RPA

RPA has shown and proven itself to be very effective in performing tasks according to the commands given to them. RPA can perform high volume tasks, tasks that require very tedious and redundant steps. RPA can complete these tasks with a smaller error margin than human users.

RPA has limited exception handling. Unlike human users RPA can perform tasks without the need for creativity or interpretation skills. It performs according to the commands it was given, which have been standardized to the system and will not need any clarification as human users do.

RPA is also prone to workload and human errors. Since RPA follows the exact steps it was given initially that leaves a very small margin for any errors to occur. Unlike human users RPA can perform redundant tasks repetitively without errors, leaving no room for human errors in the process.

## C. Improvements for RPA

RPA has shown to be able to do repetitive tasks with very few errors. However, with more complex tasks RPA has proven that there is room for improvement. Some flowchart designs may be too difficult for the RPA to understand and will not be able to perform well, or as well as they should. With this understood, minor changes and tweaks to the conceptual flowchart can help improve the workflow of the RPA to enhance its performance. Tweaking the flow of the RPA will result in a much faster process instead of running two RPAs simultaneously.

## D. Prototype

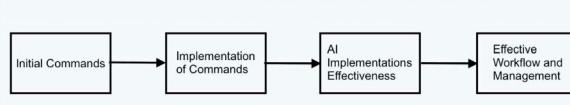


Fig. 6. Control Flow of RPA

Figure 6 explains the new basic algorithms of the prototype that uses an AI system to help filter out and organize a better management system with more security.

The key findings lead to developing a prototype with the key features that match the needs and missing features. This will fulfill the gap that allows for a better yet simple AI implementation in performing its job and adding on to existing commands while keeping the simplicity of the workflow.

This RPA will implement the upside and simplicity of work automated management programs with the AI factor leading to a smarter working bot that can complete its tasks more effectively with fewer errors.

## V. DISCUSSION & CONCLUSIONS

From the data collected and tests implemented, RPA has proven to be effective in completing redundant tasks by only following the initial inputted commands. RPA has proven to be more accurate in completing redundant tasks in the long term. However RPA still needs room for improvement in performing complex tasks.

### Future Research

The goals are to collect more data and feed in more instructions to the RPA, then analyze it for creating a better algorithm, which the RPA can then implement its AI techniques and generate a better workflow of managing, recording, and exporting documents. Subsequently, the aims are to develop an RPA that can filter and analyze different types of data such as links, video, and pdf files while handling hundreds and thousands of records for big data of different media file types.

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