

Session 5

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**NARRATOLOGICAL FRAMEWORK FOR INTERACTIVE MULTIMEDIA
LEARNING ENVIRONMENT : AN EMPIRICAL STUDY**

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ABSTRACT

- Focused on the empirical study of narratological framework for interactive multimedia learning environment.
- Problems of current e-learning software application are identified.
- The study of narratology was explored
- Narrativo – a narrative interactive educational media was developed
- Experiment was conducted to test the hypothesis about the effectiveness of narrative in educational interactive media

Conventional Multimedia Learning or E-Learning


BIOLOGY TUTORIALS

Meiosis

Interphase
It is during interphase that the cell is most active. The chromosomes are too thin to be seen with a light microscope because the genes are available for the construction of proteins. The cell is carrying out its routine functions. It is important to realise that meiosis is a continuous process as this animation will demonstrate.

The first signs of meiosis occur during interphase when the DNA replicates. Each polynucleotide chain is replicated to form two chromatids. This must happen before any condensation of the chromatids.

In the latter stages of interphase the centrioles replicate



Help Online Tutorials Quit

LPG: Japanese for Beginners

どうもありがとうございます。

Doumo arigatou gozaimasu.

Lesson 20: Section 02

Section 2: Some Basic Expressions

Yes. No.
Please. Thank you.
Thank you very much.
That's all right. You're welcome.

Click the hot word, listen and repeat. Or click the record button to record your voice.

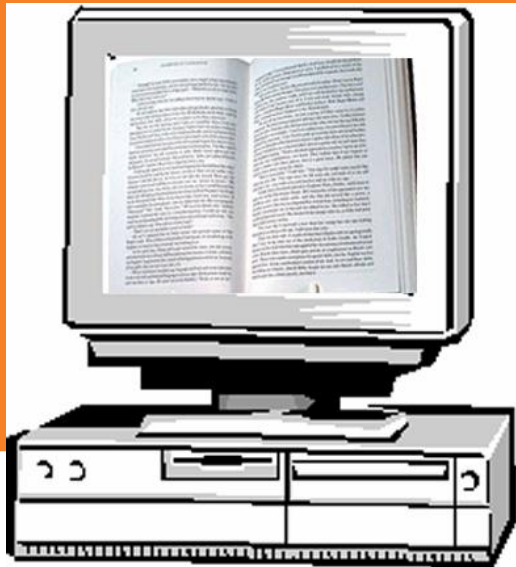
MENU EXIT

PROBLEM STATEMENT

- Educational software is rather static and text-heavy
- Interactivity is limited to allowing users to navigate the content
- It does not meet the criteria of meaningful interactivity

PURPOSE OF STUDY

To integrate the narratology approach into current e-learning software application.



OBJECTIVES

- To identify problems faced in current e-learning software application.
- To explore the possibility of implementing narratology – the theory of narrative to support learning in the virtual space.
- To analyse previous study of the implementation of narrative in learning.
- To develop a research tools based on the proposed narratological structure of e-learning.
- To conduct an experiment to evaluate the proposed narratological structure.
- To analyse the data gathered using paired samples t-test and produce a conclusion for the experiment

2. Literature Review

NARRATOLOGY

Narratives are fundamental to human understanding of intentional behaviour.

Jahn refers narratology as the theory of the structure of narrative.

Bjorn Thuresson attempted to explain the concept of interactivity and narratives in the digital environment.

ELEMENTS OF NARRATOLOGY

- Spatiality – space
- Temporality – sequence of events
- Causality – consequence of an action taken
- Personification - characters
- Dramaturgy – story line progress

3 TYPES OF IMPLEMENTATION OF NARRATIVE IN E-LEARNING

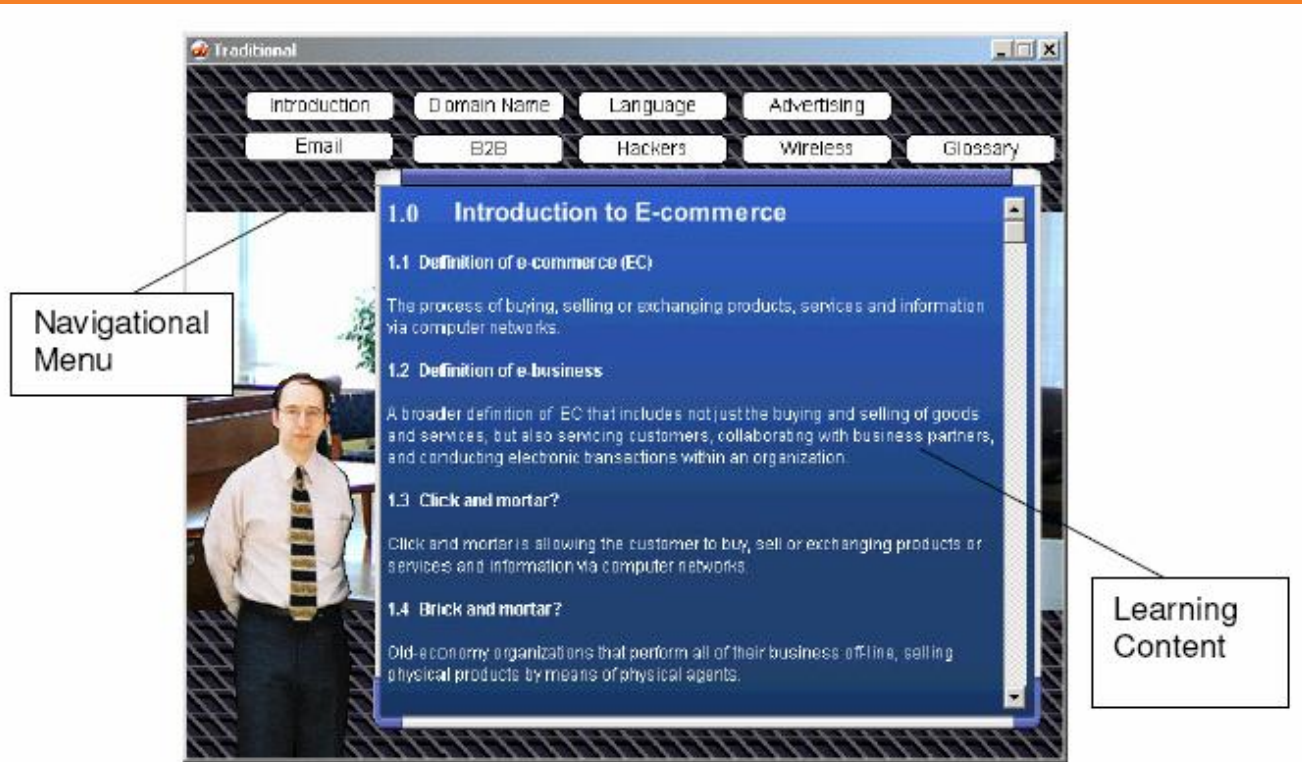
TYPES	MEANING	INTERACTIVITY
Linear Version	Present a traditional structure of narrative	Limited
Resource-based learning	Reflect the existing CD-ROMs version	Free to explore only; no interactivity
Guided discovery learning	Combine narrative guidance and interactive medium	Interactivity between the user and the application

3. Methodology

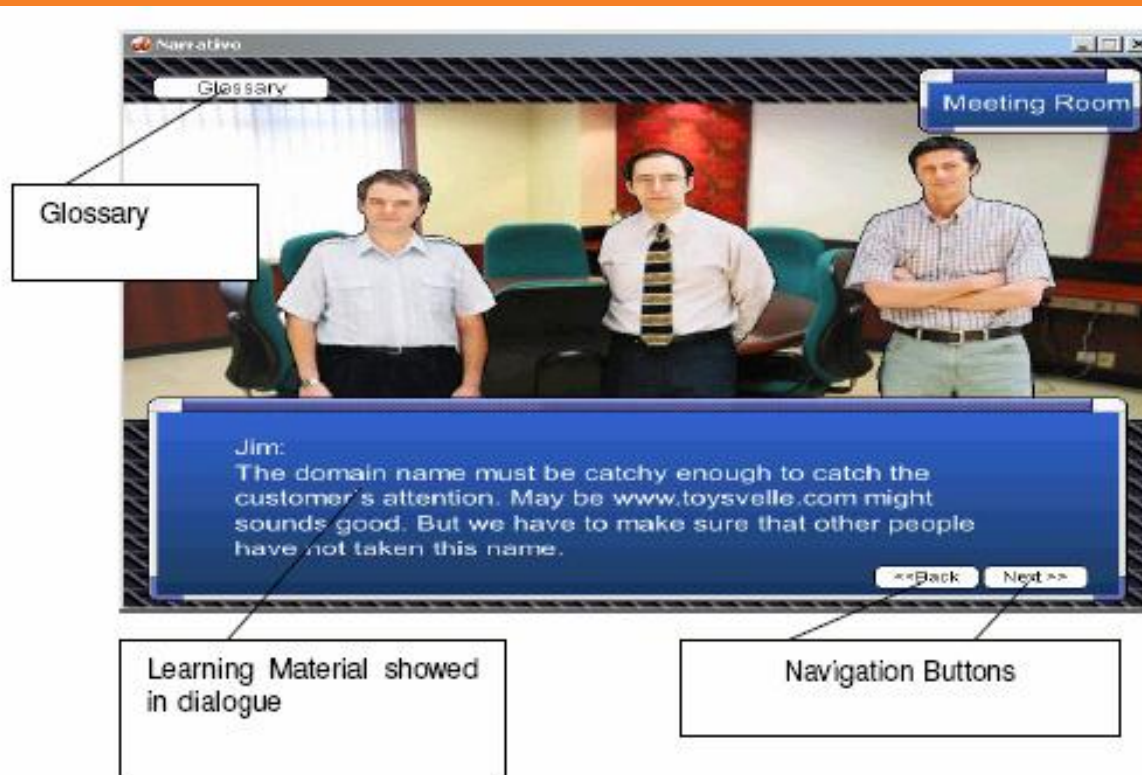
DIFFERENCES OF NARRATIVO AND TRADITIONAL PROTOTYPE

Elements	Traditional Prototype	NARRATIVO
Group	As control group	As experimental group
Structure	Traditional e-learning structure	Interactive narrative structure
Category	Resource based learning	Guided discovery learning

SCREEN SHOT OF TRADITIONAL E-LEARNING DESIGN



SCREEN SHOT OF NARRATIVO



RELATIONSHIP BETWEEN ELEMENTS OF NARRATIVE AND NARRATIVO

Elements	Definition	NARRATIVO prototype
Spatiality	A narrative takes place somewhere.	The story took place in a renowned toy company in Europe.
Temporality	Temporality is constituted by the sequence of events.	The background of the story happened from 1995 to 1997.
Causality	Causality is the consequence of an action taken	Different choices selected by the players affected the consequence of the story.
Personification	Human-like characters	There were six major characters in the story
Dramaturgy	The entire progression of the storyline	The storyline started from the process of setting up an E-commerce website to overcoming all the obstacles

ELEMENTS OF EXPERIMENT

Elements	Explanation
Treatment / independent variable	Exploring the interactive narrative prototype titled “NARRATIVO”
Pretest	10 True / False Questions 10 Fill in the blanks 5 Structure Questions
Posttest	The same questions as pretest
Participants	60 undergraduates taking HND BIT in IUCTT
Experimental group	30 undergraduates will undergo the pretest and posttest besides receive the treatment
Control group	30 undergraduates will undergo the pretest and posttest and explore the traditional version of prototype

4. Research Procedures

PRETEST AND POSTTEST DESIGN

- The questions for both pretest and posttest are the same
- All the questions are designed based on Blooms Taxonomy
- Structure of questions
 - True / False
 - Fill in the blanks
 - Structure

SCHEDULE FOR THE PILOT STUDY

- The study took place in the computer laboratory of IUCTT.
- 30 computers were used
- Each computer was installed with both the traditional prototype and NARRATIVO
- The whole experiment took one hour.

5. Findings / Analysis

FINDING

- Hypothesis :
 - *Undergraduates who are using the NARRATIVO perform better than those who are using the traditional e-learning software.*
 - H_0 : There is no difference between NARRATIVO and the traditional e-learning software to the undergraduates
 - H_1 : There is a significant performance for the undergraduates who are undergoing NARRATIVO than those who are using the traditional e-learning software.

FINDING (Cont ...)

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Marks for pre-posttest	Equal variances assumed	.055	.815	-2.585	58	.012	-4.20	1.62	-7.45	-.95
	Equal variances not assumed			-2.585	57.989	.012	-4.20	1.62	-7.45	-.95

- $t(58) = -2.585$ $p=0.012$; $p<0.05$.
 - Since the $p < 0.05$, we have to accept H_1 .
 - H_1 is accepted.
 - Hence, there is a significant performance for the undergraduates with interactive narrative-based learning than the traditional learning software.
 - There is a significance difference between the NARRATIVO and traditional prototype as the F values 0.055

FINDING (Cont ...)

- Undergraduates who are undergoing NARRATIVO are performing better than those who are undergoing the traditional e-learning software.
- Hence, NARRATIVO provide more learning effect to them.

FINDING (Cont ...)

Group Statistics

	Types of Study	N	Mean	Std. Deviation	Std. Error Mean
Marks for pre-posttest	Traditional Study Prototype	30	18.97	6.25	1.14
	Narrativo Study	30	23.17	6.34	1.16

- The mean difference of posttest and pretest for NARRATIVO is bigger than the mean for the traditional prototype.
- It indicates that the undergraduates who were using the NARRATIVO performed better in the test.
- NARRATIVO provide learning effectiveness to the undergraduates as they were more involved and in control of the prototype.

RESULT ON FEATURES FOR MOTIVATION AND ENTERTAINMENT

<i>Questions</i>	Agree (%)	Disagree (%)	Not Sure (%)
<i>I like to learn the academic subject through stories</i>	76.6	16.7	6.7
<i>I like to play this game prototype</i>	73.0	13.3	13.3
<i>This prototype helps me to learn about E-commerce</i>	86.0	10.0	3.3
<i>I have learned a lot in E-Commerce through this prototype</i>	90.0	10.0	0.0
<i>I like the colours and graphics in this Prototype</i>	53.3	40.0	6.7

SUMMARY OF THE FINDINGS

- There was a significant difference between interactive narrative in e-learning and the traditional learning prototype.
- Undergraduates using NARRATIVO performed better compared to the control group.
- Their responses to the design features for enhancing learning were positive
- NARRATIVO provided a motivating environment for them too

6. Conclusion

LIMITATION OF RESEARCH

- Undergraduates knew that they were taking part in a research study, it might have changed their behaviour
- Thirty-five minutes is too short
- This is the first time they tried this type of educational media
- The educational background and the learning pace are different

CONCLUSION

- Developing interactive narrative educational media learning environment is a new idea.
- Sound research in a wide range of areas is needed.
- Findings of this empirical study is able to address some teaching and learning issues

FUTURE DIRECTIONS

- Investigate whether these results are replicable in different domains, with learners of different ages over longer periods of time.
- Investigate what types of entertainment elements and instructional components are able to motivate undergraduates to use them more often.

**End of Presentation,
Thank you**

questions are most welcome....