An Amalab-Movie Creation Approach Model: Utilizing Statistical Science To Design Anime Hits

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ABSTRACT

The authors have created an "Amalab-Movie Creation Approach Model, A-MCAM", by utilizing statistical science to support filmmakers' design hit movies. This paper first identifies the factors that make an Anime hit movie by making the expertise and knowledge of Anime movie producers explicit. Second, explicit knowledge is then made of factors that have an emotional impact on moviegoers to identify key subjective elements in films. Third, cause and effect links are then forged between these subjective elements and those in hit movies. Finally, this knowledge and the research process are used to create an A-MCAM. The authors then enlist the support of movie producers in verifying this model, which is deemed a successful model for improving the quality of hit filmmaking.

Keywords: Knowledge of Movie Producers; Emotional Impact on Moviegoers; Anime Movie

INTRODUCTION

$\mathcal{O}$ne of the major challenges facing the Japanese film industry is the creation of film projects that will revitalize the market (Culture and Information Ministry, 2003). While the number of cinema screens and the number of films screened has soared in recent years, the key measure of box office receipts has remained flat at about ¥200 billion (in the 21st century) with many industry sources pointing to planning and development - the backbone of film production - as the cause. Then the authors created an "Amalab-Movie Creation Approach Model, A-MCAM", by utilizing statistical science to support filmmakers' design hit movies. This is a tool to support the conception of film projects by film producers who play the central role in projects (Amasaka, 2009).

Specifically, this research targets animated films for general audiences, which are aimed at the men and women of all ages. First, it makes the knowledge and expertise of film producers explicit and assesses the hit factors behind animated film projects. Next, it makes the factors that have an impact on moviegoers explicit and assesses these factors. Finally, it assesses the causal relationship between moviegoers' impact factors and hit animated film project factors.

For the purpose of improving the quality of hit animated film projects, the authors collaborated with film producers to verify the validity of the model and were able to achieve the given results.

BACKGROUND

Japanese domestic box office receipts have been flat at around ¥200 billion (in the 21st century). Planning and development - the backbone of filmmaking - is at an impasse and the absolute number of hit films infused with new creativity is stagnated and declining (Koyama et al., 2011). As far as the authors are aware, the current situation is that large companies hold superior projects, with medium and small businesses producing the projects not financed by the big companies. Great differences in profitability inevitably rise and many film companies are forced

into bankruptcy. Regardless of company size, the Japanese film industry today is in need of a new methodology to enable the conception and creation of hit film projects that will revitalize the market (Guber, 2008; Imamura, 2008; Kohara and Yamada, 2010).

STUDY PURPOSE

The authors have adopted a scientific approach to solve the problems described above and in Figure 1, they propose the Amalab Movie Creation Approach Model, or A-MCAM, to contribute to the conception of film projects by producers. Through the creation of A-MCAM, we aim to support the rational planning of hit film projects by revising the implicit hit film project creation process that producers have conducted so far.
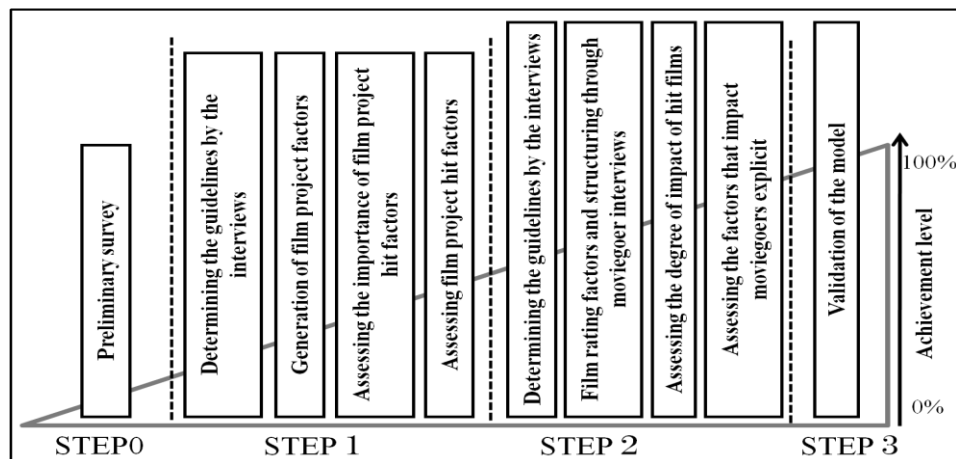

Figure 1: An Amalab-Movie Creation Approach Model

Making Film Producers' Expertise and Knowledge Explicit

Determination of Research Guidelines through Interviews

The object of this research is animated films for general audiences; the reasons being 1) greater market growth is expected for this genre than for live-action Japanese film projects and 2) we believe that the large existing number of works already introduced overseas makes this a valuable target of research (Tanimura, 2005).

Next, we will define what producers of animated films for general audiences deem a "hit film". Through interviews with four producers of animated films for general audiences (one producer from a DVD package manufacturer, two from television stations, and one from a distributor), we define "hit animated films for general audiences" (hereafter "hit films") as those animated films for general audiences having box office receipts of ¥1 billion or more and a return on investment of 200% or more.

Generation of Film Project Factor

We will extract the factors (items) required by film producers for the generation of film projects. We conducted an interview survey of producers of animated films for general audiences (the above four producers) on the question of the highest priority points in the making of animated film projects. The results, organized and categorized according to the affinity diagram method, are shown in Figure 2 (Investigation society, 2004; Amasaka, 2007; Amasaka and Nagasawa, 2000). The result of grouping according to the affinity diagram method, as shown in the figure, were five groups - "Film content", "Film production", "Film advertising", "Film distribution", and "Budget and contracts".
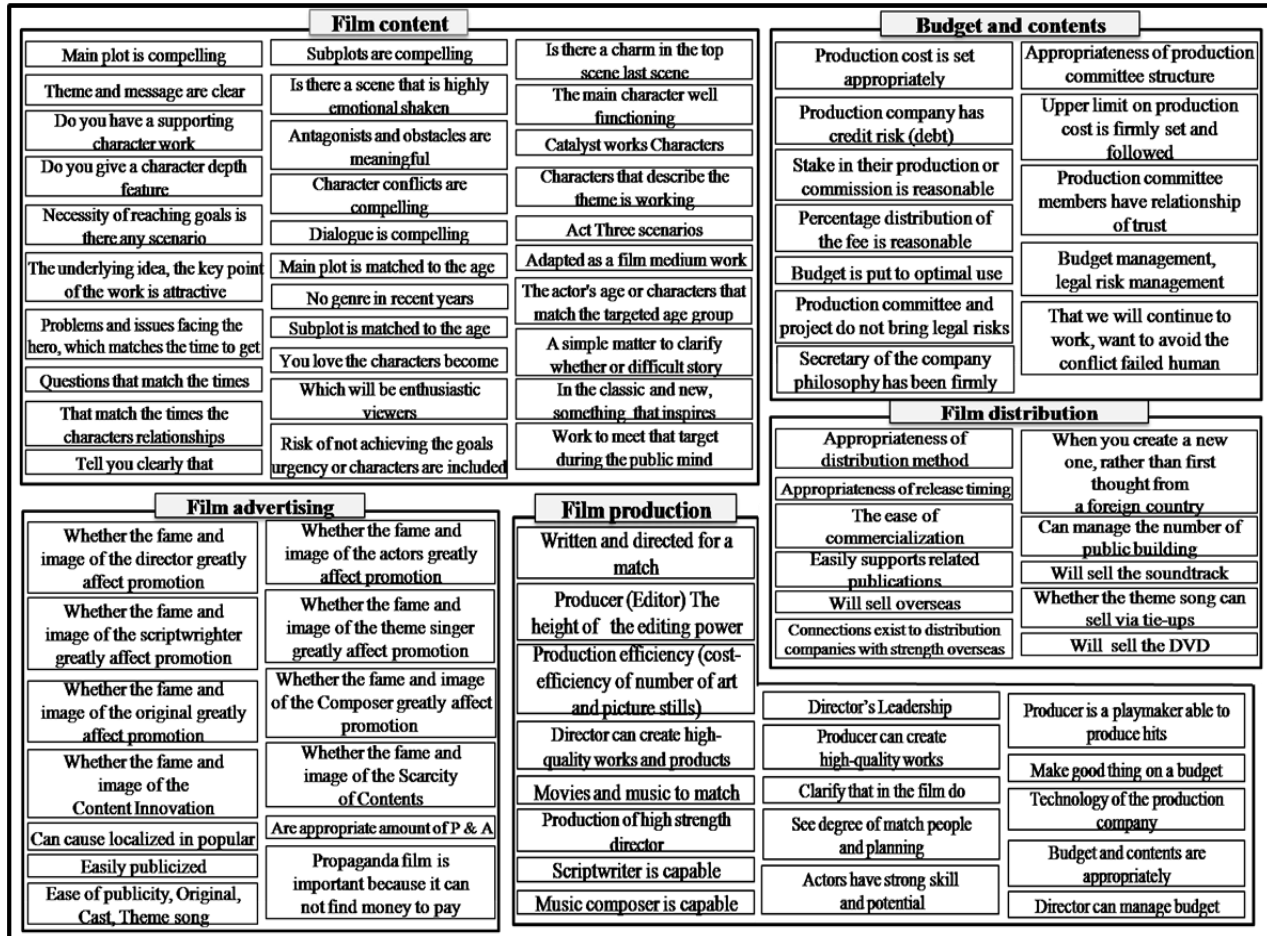
Figure 2: Affinity Diagram of Film Producers' Film Project Structure Factors

From here, we conducted further interviews with each film producer to narrow down, combine, or otherwise modify and thereby refine the factors required for film project structuring. The resulting final producers' film project structure factors, put together through interviews, are shown in Table 1. As shown in the table, we set these as five groups - "Content of film", "Production plan", "Promotion plan", "Distribution plan", and "Business scheme", per Figure 2, and generated 45 factors necessary for film projects that compose the groups.

Next, using the film project factors generated, we asked 15 producers of animated films for general audiences, via questionnaire, which of the items producers place importance on and to what degree. The questions, broadly divided, are: "From the 45 items (1-45 in Table 1) that compose film projects, select the item(s) that you consider most important", "Rate the degree of importance of each of the following groups of items in the creation of hit animated films for general audiences, using a score of 10 for the item(s) you selected as most important in the previous question and relative scores of 1 to 10 for other items; and then "State your company and past achievements as a film producer". Through this questionnaire, we were able to capture the items that film producers feels are the most important when constructing hit film projects.

Assessing Film Project Hit Factors

Through principle component analysis of the questionnaires as shown in Table 2 and Figure 3, we explored the hit factors behind film projects. Table 2 lists those items with principle component 1 factor loading of 0.8 or higher (with "No." in Table 2 corresponding to the numbers (1-45 in Table 1).

From this analysis, as items with high principle component 1 factor loading are universally important factors, such as the aptness of characters and casting and the ease of commercialization, we consider principle component 1 as the axis representing "Universality". In the same manner, as items with high factor loading in the principle component 2 axis are film project factors that are highly sensitive to the times in which the film is released, such as whether the fame and image of the director greatly affect promotion or whether the theme song can sell via tie-ups, we consider this to be the axis representing "Temporality".

From these analysis results, the universality of principle component 1 is "the ability to capture the basics" and is a universally important hit factor group that should be incorporated into projects. The temporality of principle component 2 is "the ability to capture the times" and is a hit factor group easily affected by the times, which should be employed according to circumstances.

Table 1: 45 Factors Necessary for Film Project

【1】 Film content		【3】 Promotion plan	
1	Theme and message are clear	23	Whether the fame and image of the director greatly affect promotion
2	First and last scenes are compelling	24	Whether the fame and image of the actors greatly affect promotion
3	Contains strongly emotional scenes	25	Whether the fame and image of the scriptwrighter greatly affect promotion
4	Main characters are compelling		
5	Antagonists and obstacles are meaningful	26	Whether the fame and image of the theme singer greatly affect promotion
6	Character conflicts are compelling		
7	Has three-act structure (structure that maintains interest)	27	Whether the fame and image of the original greatly affect promotion
8	Dialogue is compelling	28	Are appropriate amount of P & G
9	Points that are key to the underlying idea are compelling	29	Easily allows product or advertising tie-ups
10	Main plot is compelling	30	Easily publicized
11	Subplots are compelling	31	Age group of characters suits age group of target audience
12	Conclusion of the movie matches the market at the time of release	【4】 Distribution plan	
		32	Appropriateness of distribution method
13	Has potential for niche or local popularity	33	Appropriateness of release timing
【2】 Production plan		34	Whether the theme song can sell via tie-ups
14	The aptness of characters and casting	35	The ease of commercialization
15	Actors have strong skill and potential	36	Easily supports related publications
16	Scriptwriter is capable	37	Will sell overseas
17	Music composer is capable	38	Connections exist to distribution companies with strength overseas
18	Production efficiency (cost-efficiency of number of art and picture stills)	【5】 Business Scheme	
		39	Appropriateness of production committee structure
19	Producer can manage budget	40	Production cost is set appropriately
20	Producer can create high-quality works	41	Upper limit on production cost is firmly set and followed
21	Producer is a playmaker able to produce hits	42	Production company has credit risk (debt)
22	Director can create high-quality works and products	43	Budget is put to optimal use
		44	Production committee members have relationship of trust
		45	Production committee and project do not bring legal risks

Table 2: Results of Principal Component Analysis of Questionnaire for Film Producers
(Items with Principal Component 1 Factor Loading of 0.8 or Higher)

No	Variable name	principal component 1
10	Main plot is compelling	0.871
11	Subplots are compelling	0.863
14	the aptness of characters and casting	0.836
22	Director can create high-quality works and products	0.912
27	Whether the fame and image of the original greatly affect promotion	0.861
32	Appropriateness of distribution method	0.902
35	The ease of commercialization	0.882
39	Appropriateness of production committee structure	0.865

Next, as shown in Figure 3, we used a principal component score scatter plot to group film producers (A to O represent the film producers). As shown in the figure, we grouped 15 film producers into the following four groups according to past performance: 1) "Blockbuster producers" who have produced many hit films in the past, 2) "Hitproducers" who have not achieved a hit film (per our definition) but have achieved several hits in excess of ¥1.5 billion or with high return on investment, 3) "Steady producers" who have no big hits but have no films with return on investment under 100% and 4) "Volatile producers" who have achieved high return on investment but who also have films with return on investment under 100% or with less than ¥100 million in box office receipts. From this, we were able to consider producers with higher past achievements as producers incorporating universally important factors and making use of factors affected by the times as conditions demand.
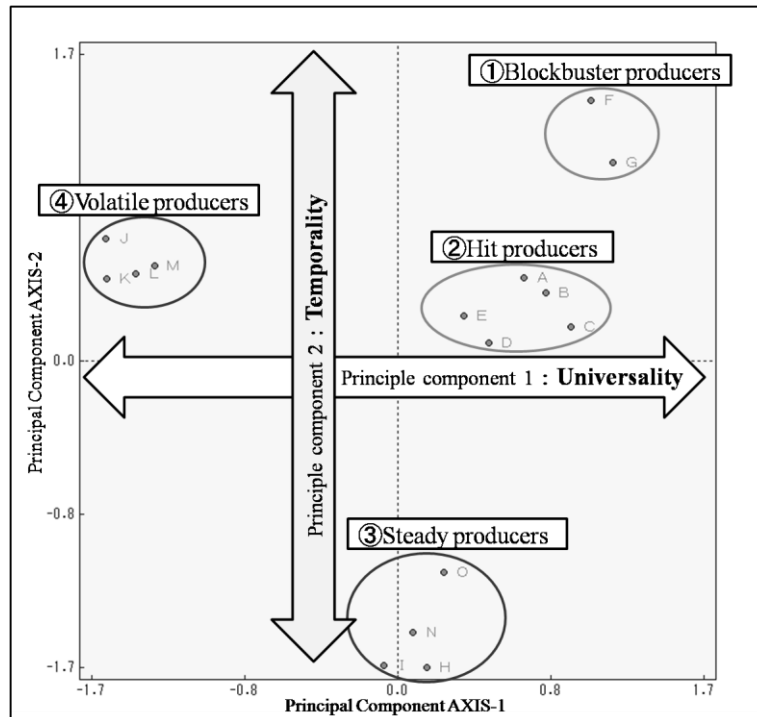

Figure 3: Results of Principal Component Analysis of Questionnaire for Film Producers

In addition, factors with a principle component 1 and 2 loading factor of 0.7 or higher are listed in Table 3 (with "No." in Table 3 corresponding to the numbers 1-45 in Table 1). We set the factor group for principal component 1 (15 items) as "universal hit factors", set the factor group for principal component 2 (10 items) as "temporal hit factors", and identified the hit factors for both universality and temporality. From these, we were able to explicitly draw out the knowledge and experience of film producers in generating hit film projects.

Table 3: Universal Hit Factors and Temporal Hit Factors

Universal hit factors（15 items）		Temporal hit factors（10 items）	
1	Theme and message are clear	2	First and last scenes are compelling
6	Character conflicts are compelling	5	Antagonists and obstacles are meaningful
7	Has three-act structure (structure that maintains interest)	13	Has potential for niche or local popularity
8	Dialogue is compelling	15	Actors have strong skill and potential
10	Main plot is compelling	23	Whether the fame and image of the director greatly affect promotion
11	Subplots are compelling		
14	The aptness of characters and casting	25	Whether the fame and image of the scriptwrighter greatly affect promotion
20	Producer can create high-quality works		
22	Director can create high-quality works and products	29	Easily allows product or advertising tie-ups
27	Whether the fame and image of the original greatly affect promotion	30	Easily publicized
		34	Whether the theme song can sell via tie-ups
32	Appropriateness of distribution method	36	Easily supports related publications
33	Appropriateness of release timing		
35	The ease of commercialization		
39	Appropriateness of production committee structure		
44	Production committee members have relationship of trust		

Making the Hit Factors that Impact Moviegoers Explicit

Film Rating Factors and Structuring through Moviegoer Interview

We identified the factors behind films that are considered as hits by moviegoers of animated films for general audiences. In interviews with 17 moviegoers of animated films for general audiences, the item generating the most opinion was "Films that have an impact on me or on others". We then extracted the specific factors of films that have an impact on moviegoers. The method for extracting the factors sought free responses to the question, "What parts of animated films for general audiences had an impact on you in the past?" from 17 moviegoers.

First, using word frequency analysis of the full text data to quantitatively assess what sort of factors moviegoers of animated films for general audiences focus on, we extracted terms such as "scenes", "characters", "pictures" "backgrounds", "music", and "voice actors". Among these, we inferred that the most commonly given term "scenes" is the one that most easily creates a lasting impression on moviegoers, and in follow-up interviews with the moviegoers regarding elements that compose "scenes", we extracted specific expressions (factors), such as "direction", "worldview", "pictures", "characters", and "acting".

Further, we indicate the elements that compose each of these items and clarified their relevance using a word network, creating the moviegoer film rating structural model shown in Figure 4. In the figure, a concept of verticality exists among the factors, indicated by arrows connecting the upper concepts with the factors that compose them. In this way, we enabled a structural assessment of moviegoers' film rating factors.
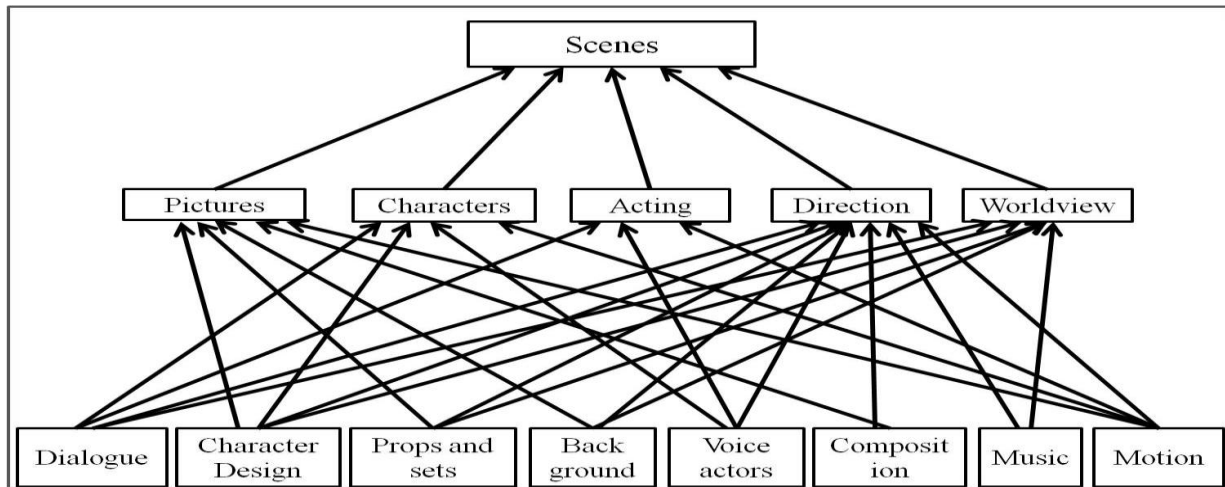
Figure 4: The Moviegoer Film Rating Structural Mode

Assessing the Degree of Impact of Hit Film

In addition, we extracted what moviegoers consider film hit factors. Specifically, we conducted a questionnaire survey using moviegoers' film rating factors to assess the degree of importance of each factor. To extract specific factors related to temporality and universality of films, the questionnaire divided hit animated films for general audiences into films of the 1980s and earlier and films of the 1990s onward. We surveyed the sort of factors in animated films for general audiences that had an impact on moviegoers and attempted to discover what lay behind priority ordering and their relevance.

The questionnaire targeted 32 moviegoers of animated films for general audiences. Based on the results of this survey, we used covariance structure analysis to extract the factors in hit films that moved moviegoers. Table 4 shows the path coefficients for films through the 1980s and films from the 1990s. GFI of Analysis through the 1980s is 0.82 and from the 1990s, it is 0.724. We consider that reliability of those analyses is not bad. From these results, we found that universal hit film factors are "direction", "worldview and setting", "dialogue", "music and sound effects", and "voices and voice actors".

In addition, we found that temporal hit film factors for moviegoers of animated films for general audiences through the 1980s were "props and sets", while temporal hit film factors for moviegoers of animated films for general audiences from the 1990s were "characters", "character design", "voices and voice actors", and "dialogue". Through this, we were able to make moviegoers' film rating factors explicit.

Table 4: Path Coefficients for Hit Animated Films through the 1980s

			Path coefficients	
			1980s	1990s
Direction	<—	Dialogue	0.418	0.337
Worldview	<—	Dialogue	0.448	0.386
Characters	<—	Dialogue	−0.155	0.341
Acting	<—	Dialogue	0.304	0.296
Worldview	<—	Character Design	−0.128	0.532
Pictures	<—	Character Design	0.157	0.094
Characters	<—	Character Design	0.331	0.646
Direction	<—	Character Design	−0.89	0.468
Direction	<—	Props and sets	0.342	−0.16
Worldview	<—	Props and sets	0.566	0.38
Pictures	<—	Props and sets	0.67	0.066
Direction	<—	Backgrounds	0.100	−0.239
Worldview	<—	Backgrounds	0.082	0.003
Pictures	<—	Backgrounds	0.015	−0.35
Characters	<—	Voice actors	0.373	0.345
Acting	<—	Voice actors	0.373	0.303
Direction	<—	Voice actors	0.37	0.353
Direction	<—	Composition	−0.7	0.124
Pictures	<—	Composition	0.135	0.93
Direction	<—	Music	0.433	0.442
Worldview	<—	Music	0.371	0.474
Direction	<—	Motion	−0.134	−0.64
Pictures	<—	Motion	−0.168	−0.127
Characters	<—	Motion	0.122	−0.57
Acting	<—	Motion	0.082	0.103
Scenes	<—	Direction	−0.89	0.436
Scenes	<—	Worldview	0.241	0.314
Scenes	<—	Pictures	−0.169	−0.183
Scenes	<—	Characters	0.4	0.286
Scenes	<—	Acting	0.53	0.077

Verifying the Validity of A-MCAM

Upon requesting an evaluation of A-MCAM from the above four film producers, the model was praised for "Clearly itemizing (factorizing) the previously implicit factors that compose film projects". Further, praise was also given for points such as "Quantitatively surveying film project structure though questionnaires, something previously done only subjectively". On the other hand, we also received comments such as "The amount of budget, persons, and time required to carry out a serial research approach should be made clear" and "Steps should be concretely indicated, up through how data is to be acquired from film producers".

Summarizing the results of verification of A-MCAM, the points that were rated highly were its status as a research approach model utilizing quantitative analysis previously not performed in the film industry and its capturing of the knowledge and expertise of film producers. In the future, to make this model of use to the film industry by further increasing its practicality, it is hoped that we will refine it within the concept of actual film projects.

CONCLUSION

This study consists of an Amalab Movie Creation Approach Model - or A-MCAM - which uses a scientific approach to assist film producers. Through this model, we revealed factors behind hit film projects for both film

producers and moviegoers. The authors, in collaboration with film producers on the conceived model, carried out verification of its validity and were able to achieve the given results.

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<u>NOTES</u>